THE

Gulstonian Lectures

ON

EPILEPSY.

Delivered before the Royal College of Physicians,

BY W. R. GOWERS, M.D., F.R.C.P.,

SENIOR ASSISTANT-PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL, PHYSICIAN TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.

LECTURE III.—PART I.

MR. PRESIDENT AND GENTLEMEN,—The aid which, during the last twenty years, the microscope has afforded in the investigation of the morbid anatomy of diseases of the nervous system has thrown little if any light on the pathology of idiopathic epilepsy. Neither the observations of Schroeder van der Kolk on the size of the vessels of the medulla oblongata, nor the changes which have been described by Meynert in the cornu Ammonis, can, I think, be accepted as having any real significance. In the cases I have had an opportunity of examining, the cornu Ammonis has presented no pathological change; while in two cases in which I have met with disease of this structure the patients had never suffered from convulsion. In considering, therefore, the pathology of epilepsy, we must seek for other evidence than that afforded by the pathological anatomy of the idiopathic disease, and draw our inferences from the morbid changes in organic disease attended by convulsion, and from the facts furnished by experiment and by the clinical study of the disease.

It may, in the first place, be assumed as not needing proof that the muscular spasm which constitutes the most conspicuous feature of the attack is due to the sudden violent action of nerve-cells—i. e., to the "discharge" of grey matter; and that the sensations which the patient experiences before losing consciousness are due, directly or indirectly, to the same cause—to the commencement of the discharge. To prevent misconception, I may say that the word "discharge" is used in the sense in which it has been employed by Dr. Hughlings Jackson and others, as a short expression for the sudden liberation of nerve-force, without any theory as to the form of physical or vital force thus liberated.

Premising this, the subject of the pathology of epilepsy resolves itself, in the main, into four questions, What is the seat of the discharge which thus produces the symptoms of the fit? Is the seat of the discharge the seat of the disease? How far does such discharge explain all the symptoms of the attacks? What is the nature of the morbid change which causes the discharge? Perhaps to no one of these questions can a conclusive answer be given. Nevertheless, these are facts which indicate the direction in which an answer is to be sought, and, what is equally important, the direction in which we must not seek it too exclusively.

What is the seat of the primary discharge? What grey matter is it which thus suddenly stimulates the nerve fibres and the muscles? It is hardly necessary to remark that the spinal cord acts only as a conductor, and that the over-acting grey matter is to be sought for above it, within the skull. Regarding the encephalic masses, we have two classes of facts. First, that there exist in the medulla oblongata, adjacent to the centres which regulate the respiratory movements and the state of the vessels, structures capable of giving rise by their action to general convulsions, the "convulsive centre" of Nothnagel. On the other hand, of all regional diseases of the brain, lesions of the convolutions stand incomparably first as a cause of convulsions, and experiment also demonstrates that irritation of the cortex, in the motor region, has the same effect. The teaching of experiment, then, is that both the cortex and the medulla may originate convulsions. The teaching of pathology is, as Dr. Wilks long ago insisted, that epileptiform convulsions have, in most cases, their origin at the surface of the brain. It may be doubted, however, whether the pathological facts alone, or in conjunction with experiment, quite warrant the conclusion that epilepsy is a disease of the convolutions. Burdon-Sanderson's researches make it probable that the convulsions which occur when the surface is irritated may depend on the discharge of motor centres more deeply seated, though connected with, and excitable from, the surface regions. So far as pathology and experiment go, these deeper structures, at the level of the corpus striatum, or perhaps lower still, may be the parts which discharge in epilepsy. The fact that lesions in certain regions of the convolutions cause convulsions beginning in certain parts, as the arm or the leg, is not incompatible with this view, since discharges beginning in the lower centres may have quite the same definite forms as when they are excited from the surface. Physiological considerations make it probable that the arrangement of represented movements in the lower centres is on the same plan as in the higher. Nor does the affection of consciousness afford valid ground for the assumption that epilepsy is a disease of the cortex, since those who believe that the discharge originates in the medulla find an explanation of the loss of consciousness by assuming an extension of the discharge to the vaso-motor centre, causing arterial spasm throughout the brain. Even if we admit for a moment that there is no proof of arterial spasm, and that the over-action of motor grey matter is the only certain element in the convulsion, such over-action may disturb the centres above as well as the centres below, and, as Dr. Robertson of Glasgow has suggested, the loss of consciousness may be the effect of an upward discharge, just as the muscular spasm is the effect of the downward discharge. Thus, neither pathology nor experiment enables us to exclude the lower encephalic centres as the seat of the primary discharge in epilepsy; and in the light of all known pathological and experimental facts, the latest writer of a systematic account of the disease, Nothnagel, can see no reason to modify the conclusion that the primary seat of the discharge—the seat of the disease—is the convulsive centre in the medulla oblongata.

Pathology and experiment, then, fail to take us farther towards a definite conclusion, but from clinical observation we may gain other important information. At this point the study of the modes of onset of convulsions becomes of the highest value. The commencement in the limbs helps us but little, because, as I have said, movements in the lower centres are probably differentiated, if not as much, yet on the same plan as in the convolutions. But it is different with the aurae referred to the special senses, or consisting in mental processes. We have seen that, of all the fits which begin so deliberately as to allow the patients to be conscious of the onset, a special-sense warning is present in a fifth—that is, the discharge, as far as we can ascertain, commences in a special-sense centre. But these centres are certainly situated within the hemispheres, above the pons, and far above the "convulsive centre." Hence the conclusion seems inevitable that the discharge in such cases originates in the hemispheres. It is equally clear that an attack which begins with an intellectual aura, an idea, cannot commence with a discharge in the medulla oblongata. Such an attack we can only conceive as commencing in the highest of all the cerebral centres, that which constitutes, to use the phrase made current by Spencer and Jackson, the anatomical substratum of intellectual processes.

We may therefore conclude that the teaching of pathology, if inconclusive alone, is right in its indications, and that in at least a large number of epileptic attacks, the process of the fit commences in the cerebral hemispheres, and that in many it commences in high centres. If this is true the question arises, Are we not justified in regarding all fits as due to changes in the hemispheres? Are there any facts to indicate that the lower centres of the pons and medulla are ever the primary seat of the discharge in idiopathic epilepsy?

It is certain that convulsions may arise from these lower centres, since they may still be produced in animals after the removal of the cerebral hemispheres. Moreover, in man, convulsions are caused, in rare cases, by diseases of the pons and medulla. But the clinical facts to suggest that they ever commence in this situation in idiopathic epilepsy are, it must be confessed, scanty. Does the study of modes of onset help us in this particular? There is one group of aurae which may be regarded as supporting the view that the fits which they initiate take origin in the medulla. I refer to those which I have grouped as the pneumogastric aurae, consisting in epigastric sensations rising to the throat, choking, dyspnœa, palpitation. We know that the pneumo-

gastric nucleus and respiratory centres are in close proximity to, and connexion with, the convulsive centre, and it is readily conceivable that a commencing discharge in this situation may lead to disturbance of the respiratory and pneumogastric centres before it causes general convulsions. But on this point other facts must be taken into consideration. The phenomena of conscious sensation make it certain that the whole body is represented in the cerebral hemispheres. It is conceivable that when a discharge originates in certain parts of the hemispheres, the central structures connected with the vagus, or representing the respiratory processes, may be the seat of the first discharge, or may, at least, be the most sensitive to the commencing disturbance, and be the channel through which the consciousness is first impressed. We must remember, as we saw in the first lecture, and as Dr. Hughlings Jackson has pointed out, that these central representatives of the vagus are the most readily disturbed in emotion, such as fear. Thus the early affection of these centres, which we have just considered to be possible in a discharge originating in the medulla, is equally possible in a discharge originating higher up. Much weight cannot, therefore, be placed on the pneumogastric aura, as evidence that the discharge originates in the medulla. This conclusion is supported by cases which show that this aura is sometimes felt in attacks which certainly commence in the hemispheres. As was stated in the last lecture, this pneumogastric aura may be associated with special-sense warnings even of high elaboration, and an instance of this is the case which I related at length.

We are probably not justified in concluding that attacks never arise in the medulla. The extremely varied character of aurae, referred as they are to every part of the organism, shows that the discharge may commence in any part of a very wide region, perhaps the whole of the brain in which sensori-motor processes are represented. The cases are, however, very few which afford any clinical evidence that the discharge commences in the medulla. It is possible that, in cases of reflex convulsions, the process occurs in this situation. Almost the only example of idiopathic epilepsy which has come under my notice, in which the symptoms suggested that the discharge originated in the medulla, was a patient of my colleague, Dr. Ramskill, who kindly permits me to mention the case. A lad, fourteen years of age, had been subject to epileptic attacks for two years, when he gradually lost all power in his arms and legs, and even his neck was weak. In this condition passive movements of the trunk, slight flexion of the spine, invariably caused a severe epileptic fit, attended by loss of consciousness. Under treatment, especially ice to the neck, he steadily improved, and passive movement would no longer cause a fit, but for a long time slight attacks occurred whenever, after being still, he exerted himself. Although there was no epileptogenic zone, the attacks remind us of Brown-Séquard's epileptic guinea-pigs, in which the convulsions certainly did not originate above the pons.

The conclusion, then, is that the convulsions in idiopathic epilepsy may, as Dr. Hughlings Jackson has urged, be due to the discharge of any of the grey matter of the encephalon, which subserves sensori-motor processes. This brings us, however, to the second question, Is the seat of the primary discharge the seat of the disease? If, by such discharge, all the symptoms can be accounted for, we have no *need* to go further, and the theory that any other pathological process underlies the phenomena must rest upon its independent evidence. To learn, therefore, whether the seat of the discharge can be regarded as the seat of the disease, we must consider, first, whether there are any symptoms for which the discharge of grey matter, which causes the aura and the convulsion, cannot account; and, secondly, whether there is direct evidence of any other pathological process.

It has been supposed that the motor discharge, especially if it occur in a low centre, will not account for the loss of consciousness. We may doubt whether this assumption is justifiable with regard to any part of the brain, even to the medulla oblongata. Any small lesion of the brain, in almost any part, will cause transient loss of consciousness. All parts of the brain are intimately connected; the whole must be sensitive to a change in any one part. The maintenance of consciousness is its highest function, the first to be interfered with by any disturbance, such as results from a discharge. If the discharge originates in some cases in the lower centres, its upward effect may, as already suggested, cause a disturbance in the highest centres with which consciousness is incompatible. For the attacks characterised by loss of consciousness only, the theory held by Dr. Hughlings Jackson, that they consist in a discharge in or affecting the highest centres only, seems an adequate explanation, and is rendered probable by the fact that such attacks are often attended by sensations of a highly specialised character. In the case of the lower centres, it seems possible that a *slight* discharge in some situations may affect the centres above, and not the centres below—may impair consciousness, and not cause convulsion.

Thus it seems unnecessary, for the explanation of loss of consciousness, to assume the occurrence of any other pathological process than the discharge which causes the convulsive phenomena. As far as I am aware, the only other symptom which may be held to indicate that there is more than this discharge is the pallor of face which is sometimes conspicuous. But the peripheral vaso-motor nerves are known to be influenced, in a very ready way, by the stimulation of other nerve-structures. That pallor of face may *result* from cerebral action is proved by the effect of emotion, whatever be the mechanism by which that effect is produced. An injury to the brain of a frog will cause the arteries even of the foot to contract. Hence it is readily intelligible, and even probable, that pallor of face may be an *effect* of the discharge which causes the convulsion.

If then it is unnecessary, in order to explain all the symptoms of attacks of epilepsy, to go beyond the discharge of which we have certain evidence, we must ask what direct evidence there is of the occurrence of any other morbid process. According to current theory, another element plays an important part in producing the phenomena of attacks—vaso-motor spasm. It has been held that the discharge itself, though originating in the hemispheres, is due to vaso-motor spasm affecting particular arteries, and exciting the action by causing local cerebral anæmia. This view, which regards epilepsy as simply a disease of the vaso-motor centre in the medulla, is now held by few. It is unnecessary to discuss it separately, since the evidence on which it rests will be considered in speaking of the second view, much more widely held, that although the convulsion depends on the discharge of motor centres, the loss of consciousness is due to arterial spasm. A third theory of vaso-motor influence is that put forward by Dr. Hughlings Jackson, that the local discharge in the brain excites, at the spot, arterial contraction, and that this determines the *spread* of the discharge.

What, then, is the direct evidence that vaso-motor spasm in the brain causes loss of consciousness, or any of the symptoms of the attacks? The evidence may be put, if somewhat baldly, yet I think accurately, thus:—Epileptic attacks are accompanied, at the onset, by pallor of face. Pallor—that is, anæmia—of face is evidence of anæmia of brain. Anæmia of brain will cause loss of consciousness and general convulsions. Therefore, loss of consciousness in epilepsy is due to anæmia of brain, the result of vaso-motor spasm; and, some would add, the convulsions themselves are due to the same cause.

The gaps between several of the steps of this reasoning will doubtless seem to many of you, as they do to me, considerable. But the first two statements are themselves of doubtful truth. I pointed out in the last lecture that epileptic attacks are often accompanied by no pallor of face, and this is true most conspicuously of many attacks of *petit mal*. I am convinced of this from my own observation, and I think I may quote in support of this the statement of Dr. Radcliffe, that the initial pallor is "often difficult to catch." Further, the assumption that pallor—i. e., vaso-motor spasm—of the face is necessary evidence of vaso-motor spasm in the brain seems scarcely justifiable. Surface vessels have no necessary correspondence in their condition with those of deeper structures. We do not infer that the brain is congested whenever the face blushes, and why should we assume that the brain becomes anæmic whenever the face becomes pale? We have seen that it is conceivable, and even probable, that the discharge in the brain may cause a reflex contraction of the peripheral vessels. In cases in which the pallor of face is apparently the result of cardiac failure, it is probable that this is the effect of the commencing discharge, and not its cause. Convulsion is not part of the ordinary phenomena of cardiac syncope. On the other hand, as the discharge often impresses the consciousness first through the pneumogastric centres, it is probable that it may in such cases influence the periphery first by the same channel. That such cardiac failure is not the *ordinary* cause of loss of consciousness in epilepsy a very small amount

of clinical observation will demonstrate, since such loss of consciousness may occur without either failure of the pulse or pallor of the face.

Thus between the fact that profound anæmia of the brain and medulla oblongata will cause both loss of consciousness and convulsion, and the theory that these are commonly so caused in epilepsy, there is a gulf over which no bridge has yet been placed. No connecting facts have been adduced which are not susceptible of other and better explanations. It is a gulf, moreover, which is widened by every addition to our knowledge of the clinical history of the disease.

One vaso-motor theory remains for discussion—that which assumes that a local discharge on the brain excites, at the spot, reflex vaso-motor spasm, and that this determines the spread of the discharge. This theory, I would venture to suggest, is scarcely warranted by known facts, or needed to explain them. It is unneeded, because the anatomical relations of known centres already afford us the means of explaining many facts in the progress of auræ, and justify us in the belief that the explanation of the others, still mysterious, will be found in the relations of the unknown centres, and especially, as stated in the last lecture, of those which subserve sensation. The theory seems scarcely warranted, because in all organs, as far as we know, functional activity causes reflex dilatation, not contraction, of their vessels; and the experiments of Ferrier have proved that this is as true in the brain as elsewhere.

One other point on the current theory of epilepsy may be briefly noticed—that which refers the final clonic spasm to a cause different from that which excites the initial tonic spasm. The clonic spasm is ascribed to the irritation of the medulla by the venous blood. It was, however, pointed out in the first lecture that there is no abrupt transition from the one form of spasm to the other. The clonic spasm is developed by interruptions in the tonic spasm, and as the fit ceases the muscular contractions do not become slighter, but less frequent. The clonic stage certainly corresponds to the cyanosis which results from interference with respiration, but if we recognise the continuity of the tonic and clonic spasm, we can hardly attribute the two to totally different causes. Observation of fits suggests, I think, that the venous congestion does produce the clonic spasm, not, however, by direct excitation, but by interrupting and ultimately arresting the spasm which before existed. I think that the fixation of the chest in an epileptic fit simply does in an intense manner that which we do in a slighter manner when we arrest an hysterical convulsion by closing the mouth and nose. There is nothing inconsistent in a certain degree of anoxæmia arresting spasm, and a more profound degree, as in actual asphyxia, exciting it. Analogous difference is seen in the action of many stimuli. The view that the tonic spasm is only clonic spasm compressed, that the clonic spasm is only the tonic spasm spread out, is supported by the fact that in attacks which begin slowly, the slight initial spasm is almost always clonic, and as the discharge spreads and becomes more intense, the spasm becomes tonic. In partial epileptiform seizures the spasm is usually clonic throughout.

The conclusion, then, is that all the phenomena of the fits of idiopathic epilepsy may be explained by the discharge of grey matter; that the hypothesis of vascular spasm is as unneeded as it is unproved; that there are no facts to warrant us in seeking the seat of the disease elsewhere than in the grey matter in which the discharge commences; that this is in most cases within the cerebral hemispheres, although possibly in some instances lower down in the medulla oblongata; that epilepsy is thus a disease of grey matter, and has not any uniform seat. It is a disease of tissue, not of structure.

UNIVERSITY OF OXFORD: FACULTY OF MEDICINE.—Candidates for the several examinations in medicine are informed that in conformity with the statute passed on Dec. 17th, 1879, examinations for the first (or scientific), and for the second (or practical, part) and for the certificate in State Medicine and Public Health, will be holden during Trinity Term next—i.e., at an early date subsequent to May 15th. Notice will be given in Easter Term stating the days and hours of each examination. Intending candidates are requested to forward to the Regius Professor of Medicine, "Medical Department, Museum," their names, addresses, standing, and the date of passing their final examination in Arts.

Clinical Lecture
ON A
CASE OF ULCERATIVE ENDOCARDITIS WITH EMBOLISM OF THE BRAIN.

BY HENRY THOMPSON, M.D., F.R.C.P.,
CONSULTING PHYSICIAN TO THE MIDDLESEX HOSPITAL.

(Concluded from p. 428.)

LET us concede that mycosis endocardii may perchance be present universally—not indeed in every instance of ulcerative endocarditis, but in every instance of the infective class as before defined. Another question remains to be asked. May we not learn a lesson from mycosis endocardii in the pathology of pyæmia? May we not see our way more clearly to the solution of the great problem, how to account for those secondary changes which, seated in front of the heart within the domain of the systemic arteries, are yet derived from sources of origin behind the heart, in the path of the venous circulation? Some instances of ulcerative endocarditis are themselves derived from this origin—in a word, they are examples of true pyæmia. In such cases there is no mystery at all. Starting from the point of invasion at the periphery, and then marching severally in single file, either alone or in company with molecules of clot, microzymes might indeed pass the barrier of the lungs; but if they were to continue on their way severally, or even in groups of a few cohering corpuscles, they would never at once block an artery or even an arteriole, whatever mischief they might do to the capillaries. On the other hand, let us suppose that the heart is their halting-place, and that here they rest for awhile and reinforce their numbers; they may then start anew, and, along with materials gathered from the heart itself, may advance in masses amply competent to stop the highway in the arteries and set up embolism there. As a rule, however, in pyæmia there is no ulcerative endocarditis, and therefore no mycosis endocardii, as the term is usually understood. Nevertheless, there may be analogous agencies at work, practically if not literally amounting to mycosis. The living organisms, and even the non-living portions of the blood-poison, when they arrive at the heart, may be free to enter into new arrangements there under new conditions. In lieu of the even onward flow of the venous circulation we have now to deal with eddying streams or stagnating pools. In these the septic elements may come into collision one with another; they may coalesce and cohere; they may react physically or chemically upon the normal constituents of the blood, so as to develop masses where before there were molecules only. With the right side of the heart we have no concern: moreover, it is easy enough without these agencies to account for the products of pyæmia in the lungs. The left heart is all-important, and here the blood is aerated, another circumstance which may have some bearing on the result. All this may appear to be wild and fanciful in detailed description, but if the secondary changes beyond the heart in pyæmia are really owing to embolism of the systemic arteries, there is much to be said for the main idea. Surely in this case the material for impaction must be elaborated in the heart, or its elaboration must begin there. If, on the other hand, the secondary changes are not owing to the cause assigned, we can only refer them in the last resort to simple thrombosis at the seat of change, or, better still, to embolism of the capillaries properly so-called. Limited to those capillaries in the beginning, the block will extend slowly backwards by overgrowth of accessory thrombi, or small superadded plugs, until the entire mass of sequestered tissue assumes the site and the proportions of a true arterial infarct. Let the pathologists of the future determine all these questions—at present they are involved in the deepest darkness.

It is otherwise, I rejoice to say, in the clinical discrimination of ulcerative endocarditis, which becomes, for the most part, clear as daylight when the teaching of a single case points the way to the diagnosis of another. You have only to do your bounden duty, and, as a matter of course, to examine the heart of every human being that comes under

your care, and it is well-nigh impossible to make a mistake. Such examination, however, is absolutely essential, for this reason. Vegetations may be growing in rank luxuriance over the valves, and yet, strange to say, there may be no præcordial distress, no local *symptom* of any sort to awaken the suspicion of mischief at the heart. Put your trust, then, in the physical signs, and, in association with the general symptoms, they will proclaim the presence of the disease with no uncertain sound. They may not, indeed, tell the whole truth at once; but wait awhile, and after one or two examinations the question will be set at rest all but indisputably. The physical signs are evermore changing from day to day in correspondence with increasing changes in the form, site, and volume of the vegetations. The systemic phenomena are severe pyrexia, and, if infection be in the ascendant, then, in full force, all the symptoms of septicæmia.

I have said that the fever of ulcerative endocarditis is often in some respects peculiar and *sui generis*. I am warranted in so saying on the assurance of two of my three last cases. In one the temperature was never noted as exceeding 102·4°, whereas the pulse ran high throughout, and in the end inordinately high. In another, that of the girl H. C——, whom you must all remember, on a few occasions the pulse marked 150; many times it ranged between 130 and 140, and never once declined below 100 from admission to death — a period amounting to three months. The thermometer, on the other hand, never showed a higher reading than 103·8°, the minimum being 97·4°, the pulse at the same time registering 138. Surely this is a strange disproportion, and one that may possibly shed some light upon the diagnosis of the disease. Both the foregoing cases were of long duration, and in both the determining cause of death was hyperæmia and œdema of the lungs, exactly as might have happened at any moment to anyone suffering from heart disease without the aid of a blood-poison to accelerate the issue. The case of M. T—— differed widely from its predecessors. She died within a fortnight, and in her the blood-poison reached a high pitch of intensity. Moreover, in her there was no disproportion of the kind above-mentioned, or, if it existed at all, the ratio was reversed, and the temperature transcended the pulse-rate. Perhaps the hyperpyrexia, which closed the scene, may be reasonably referred to acute brain-softening, with meningitis, the consequence of that softening, and not to simple septicæmia. Be that as it may, it is the hyperpyrexia characteristic of severe shock or injury to the nervous system at its climax, and finds its nearest and best parallel in cerebral rheumatism, and occasionally in tetanus and lesions of the spinal cord. In M. T——, however, the temperature, though fitful and oscillating as in pyæmia, still maintained a high general average all along, and often reached or passed the uttermost limits of pyrexia proper, even before the occurrence of embolism in the Sylvian artery. Are we, then, at liberty to say that in the milder forms of ulcerative endocarditis the pulse-rate is ruled by the bulk and burden of the vegetations, provoking the heart to excessive action, but not materially exalting the fever-heat; while in cases that are truly and thoroughly infective the blood-poison is the overruling power that governs the course of events, and gives full expression to the fever in all its phases?

Other symptoms there are or there may be to which I should accord a high value and a strong significance. First let me mention a marked apathy in the patient, an utter indifference to everything and everybody around him, sometimes alternating with delirium. Whenever I have found a murmur or a medley of murmurs at the præcordia, I have learnt to look upon delirium in the light of a symptom suggesting embolism of the extreme arterioles of the brain, chiefly in the cortical system of the convexity. M. T—— exhibited unconcern and indifference enough, apparently owing to sheer helplessness and abolition of all mental power. Usually I have seen it in the guise of reverie and dreamy abstraction. Such demeanour was not to be expected in M. T——. In her the Sylvian artery was plugged at the main, there was extensive softening of the central ganglia and their environs, and there was meningitis. In the girl H. C—— dreaminess was a conspicuous feature, and in her brain we found a minute focus of yellow softening near one of the parietal convolutions.

Another special symptom, and a most inauspicious one when it occurs, is an eruption of spots resembling petechiæ, and evidently originating in capillary embolism. As for embolism on the large scale, endangering life or limb, even when its presence is fully ascertained, I exclude it from the reckoning altogether, and for a good reason. I wish you to understand the case with all possible speed before such embolism arrives, and not to await its arrival.

Last, but not least, in the catalogue of special symptoms is profuse drenching perspiration, second only, if it be second, to that of ague, and far beyond the average mark and measure of phthisis or abscess. In all my recent cases of ulcerative endocarditis I have invariably met with this superabundant sweating, so that, in my mind, it is now fairly enrolled among the leading indicia that would guide me on the way to a right diagnosis. I dare not, indeed, affirm that sweating is universally present. In an old and ill-recorded case of my own there is no mention made of it in the notes.

Finally, I have to comment upon the insensibility of the entire left side, associated with left hemiplegia, as a result of the embolus in the opposite side of the brain. Hemianæsthesia, intense in degree and bounded with geometrical precision by the median line of the body, is far from uncommon as a symptom of hysteria, if we may accept the accounts of the French authorities. Briquet and Charcot assure us that hemianæsthesia, perfect in all its points, occurs in 93 out of every 400 cases—that is to say, in upwards of 23 per cent. of all hysterical women. I can hardly imagine it to be so common in England; indeed, I am sure it is not; but then we are far behind the French in all the mysteries and marvels of hysteria. In the vast majority of instances you will be at no loss to discern the underlying neurosis, which will ordinarily be certain to betray itself by one or more of its familiar features, although you would do well to remember that M. Charcot has met with mixed cases truly cerebral and truly hysterical at once. Nay more, he has encountered a few cases of purely cerebral origin presenting all or nearly all the characters of hysterical anæsthesia. With reference to the pathology of the cerebral form, M. Charcot, after long wavering between many regions whose morbid changes might possibly determine hemianæsthesia, comes at last to the conclusion that the posterior part of the internal capsule is alone responsible for the result. At any rate, it is the only part which is found to be invariably destroyed or damaged in all cases of predominant and persistent hemianæsthesia where the lesions are circumscribed. Now, the internal capsule lies wholly within the domain of the Sylvian artery, a domain in the present case utterly disorganised by interception of its blood-supply at the fountain head—hence the hemianæsthesia. The hemiplegia needs no commentary. Cases of this kind are not numerous. The reason appears to be that the plug is usually seated at the point of a bifurcation, and not at the origin of the vessel. It is interesting to note how closely the lesions follow the lines of anatomy. The softened structures are all comprised rigorously within the range of the Sylvian artery; the unsoftened portions of the great central ganglia lie more or less beyond that range; their blood comes wholly or partially from other sources—in the corpus striatum from the anterior cerebral artery, in the optic thalamus from the posterior cerebral.

Regional diagnosis of brain disease offers many beautiful problems for solution. Has it any corresponding advantages in practice? It is a sad tale to tell, but I am afraid those advantages have been immensely overrated. For all that, I should be the last person to disparage or discourage it in its proper place, chiefly as a matter of medical science. On general principles, I should say in medicine, as in everything else, let us by all means solve all the problems we can. We never know what fruit our investigations may bear in time to come, however barren and unpromising they may seem to be now. Again, in a few particular instances, localisation may enable us to forecast the future of a case. If, for example, there are grounds for ascribing the symptoms to the medulla or its environment, then beyond a doubt life is most seriously compromised. Darker still are the prospects of recovery when we have reason to believe that an extravasation of blood has forced its way freely into the ventricles of the brain. Finally, if we ever meet with another case of hemiplegia and hemianæsthesia conjoined, and know that it is the result of embolism, the chances are that the embolus must be lodged *in limine* at the very commencement of the Sylvian artery, over and against the points where the basal branches are given off from the main trunk. I need not tell you that a lesion so situated would be imminently perilous to life. I am not aware that there exists in the arterial system around the spot any mechanism competent to save

from utter destruction the ganglionic territory within the sphere of the Sylvian artery, however it may fare with the convolutions and the cortex. Not that I should refer the rapidity of the softening process to this cause alone. Large allowance must be made for collateral agencies, for the fever of septicæmia, and for the general depravity of the blood and tissues. Even in our case the constitutional symptoms and the nature of the lesion must be taken into account. The mere site of the mischief in a particular region of the brain is only one item in the reckoning, and in the majority of cases it is only a subordinate item. Lastly, let me ask, will regional diagnosis avail you much in the matter of treatment? I fear not. It availed me nothing, or next to nothing, in my own case. It was there addressed chiefly to the pyrexia and the prostration. What in the world could I do with the embolus? As for the meningitis, I knew nothing of it before death, and, if I had known of its existence during life, no measure of mine would have made the slightest impression upon it.

ON THE TREATMENT OF CANCER OF THE FEMALE GENERATIVE ORGANS BY A NEW METHOD.

BY PROFESSOR JOHN CLAY,
OBSTETRIC SURGEON TO THE QUEEN'S HOSPITAL, BIRMINGHAM.

IN the following observations I intend to confine myself to the consideration of the treatment of carcinomatous affections of the generative organs, by a new method which I believe to possess great advantages, though as the experience of this particular treatment extends over a period of only twelve months, sufficient time perhaps has not elapsed, in some of the cases, to enable me to state positively that a permanent cure has been effected. It will be obvious, however, on reading the clinical facts here submitted, that if this ultimatum has not been attained, an amount of relief has been secured to the patients which has not been afforded by any other plan of treatment.

The researches of modern pathologists have done much to elucidate the nature of cancer, and have at least reduced to their anatomical elements changes of structure so singular and complicated that they seemed at one time to defy description. To define the histology and morbid anatomy of cancer does not come within the scope of this communication. There are certain facts of cancer which are obvious and indisputable—namely, that it is a definite morbid growth, possessing, among other qualities, rapidity of development, never retrogressive, but having an almost certain tendency to invade, step by step, each surrounding texture, without any distinction, extremely prone to recur on removal by operation or caustic agencies; very liable to attack distant organs, and invariably culminating in a fatal issue. This general description applies notably to cancer of the female generative organs, perhaps the most painful and frequent of all the forms of this disease which affect the human system. The patient's sufferings are aggravated by the knowledge that her disorder is pronounced by the medical adviser to be incurable; she lingers under the double torment of excruciating physical agony and mental depression, and the utmost that can be done by the medical attendant is to afford her the tenderest sympathy while deadening the anguish of the patient by the judicious use of sedative remedies. Divergence of opinion has existed as regards the curability of true cancer, probably ever since medicine has been studied as a science. On the one hand, those who deem cancer to be incurable urge that the infecting character of the disease, its multiple manifestations, its recurrence, and the cachexia which it induces afford incontestable proof of its incurable nature. The advocates of the theory of the curability of the disease deny the absolute fact of primary cancerous infection, and in support of their view quote cases which, after treatment, have not suffered relapse. Opinion, while deserving serious examination, does not carry conviction, but facts plainly and truthfully narrated, and corroborated by independent testimony, will always be received by the profession without prejudiced scepticism, and with an earnest determination to test their validity. Impressed with these views, fortified with a consciousness of the importance of the clinical investigation which I have made during a long period as to the curability of cancer, I venture to submit to the profession my most recent experiments, in the hope that suffering humanity may at least be benefited by their publication.

As the result of an extended trial of a large number of remedies, both general and local, in the endeavour to cure cancer, the conviction forced itself upon my mind that a remedy for this disease must be one to be administered internally, and that it must be of such a nature as not to interfere with the functions of the special organs, or otherwise to injuriously affect the nutrition of the body, and that it must also be capable of being administered for a length of time sufficient to effect the removal of the disorder. A large number of remedies for the cure of cancer mentioned by various ancient and modern authorities, as well as some hitherto untried, which suggested themselves to me, were employed empirically, but they failed to produce an appreciable effect in curing or arresting the disease. At length, after a careful study of the pathology of cancer, and the effects of certain carbo-hydrates administered internally, it appeared probable that a remedy for cancer might be found amongst them. A list of those apparently most eligible was made, but, after studying their therapeutic properties, it became obvious that most of them were unsuitable for the purpose as possessing commonly known specific properties, as well as exciting a special action on certain structures and organs of the body. Besides, their administration could not be expected to be sustained for a sufficient length of time, even if they were likely to act on the morbid growth. Circumstances, however, led me to think differently of the Chian turpentine, and I determined to try it on the first opportunity. This soon occurred. A woman came to the hospital as an out-patient, aged fifty-two. She was suffering from scirrhous cancer of the cervix and body of the uterus. Hæmorrhage was excessive, pain of the back and abdomen agonising, and cancerous cachexia well marked. The patient evidently had not a long time to live. The uterus was so extensively destroyed by the cancerous ulceration that its cavity readily admitted three fingers. In such a case it appeared to be justifiable to attempt to relieve the sufferings of the patient, even if the remedy should produce unfavourable symptoms, or should prove of no avail. I therefore prescribed Chian turpentine, six grains; flowers of sulphur, four grains; to be made into two pills, to be taken every four hours. No opiates were prescribed or lotion used. No change was to be made in her diet or occupation. On the fourth day after taking the medicine the patient reported herself greatly relieved from pain, and was in better spirits, but she complained of a large amount of discharge. It was feared that she referred to a discharge of a sanguineous nature. On examination, however, the vagina was found to be filled with a dirty-white secretion, so tenacious as to be capable of being pulled out rope-like, and this although she had syringed herself three hours previously. The os was quite contracted and would now scarcely admit the finger, and the surrounding swelling or cancerous infiltration of the cervix was much reduced. On the twelfth day the thick tenacious secretion had almost disappeared, and was succeeded by a somewhat copious serous fluid. The os was not so firmly contracted, but would only admit the finger. The patient's general health was improved and the medicine well tolerated. Sixth week: I ordered her a quinine mixture, in conjunction with the turpentine, but sickness supervened, which ceased on omitting the quinine. Twelfth week: My notes are—the parts feel ragged and uneven, and do not bleed on roughly touching them. The speculum shows several cicatricial spots. The turpentine has been taken regularly during the day for twelve weeks every four hours, during which time she has been almost free from pain and has had no hæmorrhage; no glandular enlargement; general health improved. Walks easily to the hospital, being about a mile distant. As the patient did not come again to the hospital her address was obtained, and it was ascertained that she had left her residence. Being a widow she could not afford to keep her home, and she went to reside with her married daughter in a northern town; but left no address. The case showed that the medicine was one of great power in cancer of the uterus, and it is to be regretted that an opportunity was not offered for fully carrying out the treatment.

Another patient, aged thirty-one, suffering from cancer of

the os and cervix uteri, was treated concurrently with the one just mentioned. These parts were enlarged from carcinoma to the size of a hen's egg. The os was dilated, and the cavity of the cervix was filled with epithelial growths, which bled freely on examination. Sacral pain was very severe, and hæmorrhage had been continuous for the previous six weeks. The Chian turpentine and sulphur were given as in the previous case. The patient again attended at the hospital on the seventh day after taking the medicine. She was in excellent spirits, and expressed her gratitude for the relief afforded her. The medicine entirely relieved her pain. She had increased white discharge. On examination the os and cervix were found to be nearly of the normal size. The os was patulous, and its surface was studded with flabby shot-like eminences, which did not bleed on roughly rubbing them. I said to her, "You are better; you must continue the medicine." She answered, "I should think I must, for I could not do without the pills; they have eased me so very much." She continued to improve, and on the fourth week she expressed herself as quite well. I impressed upon her the necessity of continuing the medicine, and told her to see me occasionally. She did not come to the hospital again for four months, when she brought another patient to consult me, believing that she was suffering from cancer. I reproved her for leaving off attendance at the hospital. She answered that she thought it unnecessary, as she had continued quite well. On this visit she submitted to an examination. The os was rough and irregular, but was of nearly the normal size; no signs of cancerous infiltration; the periods were regular, and not profuse, and were unattended with pain; there was slight leucorrhœa. This case was a most remarkable one. The turpentine acted upon the growth with great vigour, literally melting it away in the brief period of four or five weeks.

The third case was one of epithelial cancer of the os, cervix, and body of the uterus, in a woman, aged fifty-two years. The vagina was not involved. The mass was larger than a cricket-ball, almost filling the vagina. The border of the os was three-quarters of an inch in thickness, forming a ring of two and a half inches in diameter, through which protruded an epithelial growth, principally proceeding from the anterior wall of the uterus, and projecting about two and a half inches into the vagina. The case was sent to the hospital for my opinion by my son, Mr. Langaford Clay, who had attended the patient but a short time. The journey to the hospital fatigued her very much, and she declared that she could not come again, and that she did not wish to remain as an in-patient, believing that she could not live many days. She had repeated hæmorrhages, had much pain, and had the cancerous cachexia well pronounced. My son volunteered to attend her at home, and I agreed to see her occasionally with him. I thought it advisable as an experiment to vary the treatment somewhat, and ordered to be added to the pills one-sixth of a grain of the ammoniated copper, as from the large mass to be acted upon I thought that an astringent should be superadded to the turpentine. The dirty-white tenacious discharge appeared and continued for the first five weeks, but there was no hæmorrhage after the first examination. The swollen os uteri and the cervix beyond were the first to show signs of diminution; this was noted on the fourteenth day. The tumour, however, was rough and shrunken, and did not project so much. Sixth week: The surface of the tumour was at the level of the os uteri, and seemed to consist of a mass of bloodvessels which bled moderately after examination. This condition occasioned me some surprise, as three weeks previously the patient was ordered a lotion made with perchloride of iron, with a view to arrest hæmorrhage, since from her anæmic condition it was feared that the loss of a moderate amount of blood would be followed by serious consequences. I asked her what kind of syringe she used with the lotion. She replied, "I thought the lotion was merely to bathe the external parts." This, as it happened, was very satisfactory information, as it showed that the lotion had no share in the reduction of the mass, which now was scarcely half the original size. She was supplied with a syringe for the purpose of applying the lotion, and after using it three days the mass of vessels had considerably shrunken, and no longer bled on manipulation; but the surface of the growth had the touch and appearance of a gangrenous mass, but there was scarcely any fetor. The patient now complained of gastrodynia, with colicky pains in the bowels, but she had no diarrhœa or vomiting. I believed this to be due to the copper, and it was consequently discontinued. It also occurred to me that the turpentine might not be efficiently digested in the solid form, and that it would be better if the remedy were administered in a state of minute subdivision, as in the form of an emulsion. An ethereal solution of Chian turpentine was prepared by dissolving one ounce of the turpentine in two ounces of pure sulphuric ether (anæsthetic). The ether dissolved the turpentine instantly. This solution was given to our skilful dispenser, Mr. Whinfield, with a request that he would prepare a pleasant mixture or emulsion from it, and after a few trials he prepared one which is not unpleasant to take, according to the following formula:—Solution of Chian turpentine, half an ounce; solution of tragacanth, four ounces; syrup, one ounce; flowers of sulphur, forty grains; water to sixteen ounces: one ounce three times daily. This form of mixture was given to the patient, and was much liked. She has now taken the turpentine for thirteen weeks uninterruptedly. The os uteri is a little more than one inch in diameter, and feels like a ring of cartilage about a quarter of an inch in thickness. The tumour has nearly disappeared, and the finger can be introduced posteriorly into the uterus for more than an inch. The general health has much improved, and she is quite free from pain and looks cheerful, and is becoming stouter. No sedative whatever has been given during the treatment. Fourteenth week: She complained of severe "cramp-like pains" in the back and lower part of the abdomen, which she attributed to the mixture, and in consequence it was discontinued for a few days, and an opiate given, by which she was greatly relieved. The turpentine was again resumed. Nineteenth week: She is now fairly convalescent. The growth has almost disappeared, and the parts beyond the os uteri are somewhat hypertrophied, yet are almost normal to the touch.

The fourth case was that of a patient aged thirty-two years, who came to the hospital after having been discharged as incurable from the Women's Hospital. She was greatly depressed, and was most desirous to be cured, for the sake of her family of young children. She has had repeated floodings, and suffered greatly from pain during the past five months. Constipation very troublesome, which probably arose from the opiates she had been in the habit of taking. On examination, she was found to be suffering from epithelial cancer of the os and cervix uteri, but not involving the vagina. There was a cancerous mass of the posterior parts of the os and cervix, of the size of a goose-egg. This growth pushed the os uteri towards the pubis, almost preventing that part from being felt. The turpentine mixture was given her three times daily, and from this period a very rapid diminution of the growth took place, so that by the sixteenth day it had almost entirely disappeared. The os uteri was now *in situ*, admitting the finger readily, and there was the same condition of the vessels as that observed in the preceding case. The lotion with the perchloride of iron was used daily for a few days with excellent effect. In the ninth week the patient suffered from spasmodic pains in the back and abdomen, and as this was attributed to the medicine it was discontinued, and iodide of calcium, in five-grain doses, three times daily, was administered. This was taken for about a fortnight, but, not feeling so well, the patient was admitted into the hospital. The condition of the internal organs was now much the same as before, the iodide of calcium was given, but there was some thickening about the cervix, which was fixed to the vagina. The rectum was excessively loaded, and required several days to effectually relieve it. The Chian turpentine was administered simply; but a lotion was prescribed, containing six grains of white arsenic to one pint of water, to be used daily. Under this treatment the woman very rapidly improved, the pains entirely ceased, and the parts became much reduced in size and more movable. The patient was now anxious to leave the hospital for her home, as she felt quite well; but it was deemed advisable to send her to the Sanatorium instead. She is very active, cheerful, and happy, and may be pronounced convalescent.

Other cases are under treatment, both in the hospital and privately, all showing similar effects. The remedy is now being tried in cancer of other organs, and apparently with good results. One of the most interesting, perhaps, is a case of scirrhus of the breast, which has been under observation for some weeks. Among the other cases are cancer of the vulva, stomach, and abdomen, in which very remarkable benefit has been already produced.

From the results obtained by the use of Chian turpentine,

it may be confidently said that the remedy does exert a powerful action on cancer of the female generative organs in particular, and it will be of advantage to point out some of the conclusions at which I have arrived respecting the efficacy of the drug and the manner in which it should be employed. The oil of turpentine, if it produces any effect on cancer, is inadmissible on account of the speedy production of its specific effects even when administered in small doses. The same remark applies with less force to the Venice and Strasbourg turpentines; in my hands they have not produced the same beneficial effects on cancerous growths as the Chian turpentine has done. The maximum dose of the last-named drug which can be safely and continuously given is twenty-five grains daily. It is advisable to discontinue the remedy for a few days after ten or twelve weeks' constant administration, and then to resume it as before. The combination with sulphur was given at first, and has been continued. It is doubtful whether much benefit is derived from the combination, but the effects have been so uniformly good with it, that it was thought advisable to continue its use. There is every reason to believe, from the trials made with other substances in combination with the turpentine, such as carbonate of lime, iodide of calcium, ammoniated copper, quinine, bebeerine, hydrastin, &c., that the turpentine is best administered simply, as the most marked and rapid effects have always been manifested when it has been given alone.

The turpentine appears to act upon the periphery of the growth with great vigour, causing the speedy disappearance of what is usually termed the cancerous infiltration, and thereby arresting the further development of the tumour. It produces equally efficient results on the whole mass, seemingly destroying its vitality, but more slowly. It appears to dissolve all the cancer cells, leaving the vessels to become subsequently atrophied, and the firmer structures to gradually gain a comparatively normal condition.

It is a most efficient anodyne, causing an entire cessation of pain in a few days, and far more effectually than any sedative that I have ever given. In the cases I have described no sedative was employed in any instance, although in some cases where great pain had existed previously to commencing the treatment, large doses had been given. Whether this arrest of pain arises from the death of the tumour, or, as my son suggests, is due to there being no longer irritation of the sentient nerves (in consequence of tension being withdrawn by the removal of the cells), the fact is the same.

If, after the use of the remedy for some weeks, one of these cases were examined by a stranger for the first time, he would probably conclude that it was one of commencing malignant disease, by reason of the irregularities of its surface. The effect of the remedy being first to remove the cellular structures, any loss of tissue produced by the invasion of the disease cannot be restored, and hence the irregular touch and appearance even after cicatrisation. The arrest of the hæmorrhagic discharge and the remarkable freedom from glandular affections, after a lengthened use of the turpentine, are specially important factors in materially aiding the removal of the cachexia and of improving the general condition of the patient.

Without being in a position to affirm that the Chian turpentine is a positive cure for advanced cancer of the female generative organs, yet however the facts here adduced may be interpreted in this respect, two circumstances are indisputable—one, that all the patients after several months' treatment are living, and that the disease has not advanced as is usually the case, but has retrogressed—in fact, has all but disappeared; and it may at least be safely asserted that when the remedy is steadily used for some time it arrests the progress of the disease, and relieves the pain incidental to the morbid growth in a manner which cannot be said of any other remedy. It is probable that on an extended experience of its use and by variations of the mode of administration, it may prove an effectual cure for this intractable disorder. Patience and perseverance on the part of patient and medical adviser are absolutely required. We know that in some diseases, as bronchocele and syphilis, a long continuance of well-known remedies is often necessary to effect a cure of the particular disorder, and that the administration of the remedies has to be varied from time to time, according to the therapeutic effects produced by the drugs. In cancer, as far as experience has at present indicated, the same alternating method may perhaps have to be employed. Whatever may be the ultimate results there can be no doubt that Chian turpentine in these disorders is a most valuable medicine. Judging by my experience it is no figurative expression to say that it acts as a direct poison upon the growth, probably causing its ultimate death. In advanced cancer the process of reparation is slow, but if the surrounding structures are not too much involved in the process of destruction, it will seem that a cure may be reasonably expected. It is not that the remedy has failed against the cancer, but that the vital organs are so much destroyed that their complete reconstruction and adjustment of functions are not possible, and life fails in consequence of their mutilated condition. Even under these circumstances, if the cancer does not recur, the efficacy of the medicine is obvious. In the early stages of cancer it may be affirmed that an undoubted cure may take place speedily, and as the contiguous structures are not extensively involved, but little deformity ensues; and experience justifies the expectation that under such circumstances a recurrence of the disease will not follow.

The history of the local treatment of cancer of the uterus is one of singular interest, and is highly instructive to the practical physician. The contrast between the general and local treatment is the more notable, as nothing can be more injurious to the welfare of the patient than an attempt to destroy the cancer by external agencies. The disease is not to be averted by this means, as the symptoms assume a more intense and threatening character, until the patient rapidly sinks. It may be observed that the internal treatment here recommended when used for a considerable period is borne by the patient with remarkable tolerance. As I have mentioned, in some of my experiments I determined, in order most thoroughly to test the medicine, to rely upon this alone. Recently the arsenical lotion has been superadded, and, with no injurious consequences—it appears to act as a disinfectant, and it may produce some benefit by promoting the cicatrisation of the tissues. Several suggestions offer themselves for inquiry as to aiding locally the detachment of the growth, after its vitality has been destroyed; but this is not of much importance, as there seems to be no fear of the blood becoming affected by the absorption of the decaying tissues, the turpentine probably preventing any such calamitous occurrence.

If the practice now described should prove by future experience to be justified, then it will be incumbent upon the medical adviser to treat cancer of the generative organs at an early stage of its development, and it is reasonable to conclude that this dreaded and most fatal disease will no longer be the scourge it has hitherto proved, and that another benefit will have been conferred upon suffering humanity by the resources of therapeutic art.

Birmingham.

ON

ANÆMIA AS A CAUSE OF HEART DISEASE.[1]

BY JAMES F. GOODHART, M.D.,

ASSISTANT PHYSICIAN TO GUY'S HOSPITAL AND THE EVELINA HOSPITAL FOR CHILDREN, DEMONSTRATOR OF MORBID ANATOMY AT GUY'S HOSPITAL.

I SHALL base the remarks that I have to make upon this subject on the following four cases:—

CASE 1. *Hæmorrhage from the Uterus after Miscarriage; Fatty Heart.*—Emma S——, aged twenty-three, was admitted to Guy's under my care on April 26th, 1878. She had always been strong and healthy till her present illness. Three months before her admission she had a miscarriage, and lost a large quantity of blood, and ever since that time she had, at intervals of five or six days, been subject to repeated hæmorrhage, the last on April 20th. She was much wasted and completely blanched. The blood contained some 200 white corpuscles in every field, and the red corpuscles were much diminished in quantity. The viscera were normal except the heart, the action of which was very violent, and the beat diffused and cantering. There was a rough double sound at the base, with a systolic bruit to the left of the sternum. She died very soon after her admission, and at the inspection the heart was found thus:—The peri-

[1] Read before the Harveian Society, January 15th, 1880.

cardium contained two ounces of clear serum. There was no pericarditis. The heart weighed eleven ounces. The left ventricle was a little dilated. Tabby striation was well marked in the musculi papillares, and in some parts of the wall of the left ventricle and also beneath the pericardium, particularly in the right ventricle. The valves were all healthy. The ventricles contained some poor, half-coloured clot. There was no appearance of leucocythæmia. The spleen weighed six ounces, the liver forty-three ounces, the kidneys nine ounces; all were quite bloodless, but not otherwise diseased. The cause of the hæmorrhage was found to be a slough of somewhat obscure origin in the uterine wall.

CASE 2. *Sarcoma of the Bladder; Hæmorrhage; Anæmia; Tabby Striation of the Heart with Dilatation.*—A man, aged thirty-four, was admitted under the care of Dr. Habershon, who has kindly allowed me to quote the case, for hæmorrhage from the bladder. This was first noticed when he was a boy, and the bleeding had returned many times at intervals, but latterly with severity and the passage of coagula. He died a month after his admission, and during the last few days of his life his temperature was pyrexial. The heart weighed sixteen ounces. There was a well-marked tabby change in both ventricles, the striation being well marked beneath the endocardium, and the left ventricle was dilated. The coronary arteries were good, and there was no excess of fat externally. The cause of the hæmorrhage was a large sessile growth of medullary sarcoma at the base of the bladder. The viscera were pale and bloodless, but not otherwise diseased.

CASE 3. A woman, aged forty-five, had suffered from severe hæmorrhage from a uterine fibroid. The hæmorrhage was so severe, that one of her legs became gangrenous, and she was admitted for this under Mr. Cooper Forster's care. She was extremely blanched, and for some time nothing could be done, but at length the limb was amputated, and she improved. After a time, however, she had rigors; a large bedsore formed, and uncontrollable diarrhœa carried her off. She was much emaciated. Chronic abscesses were found in her lungs and kidneys; thrombosis of the vena cava and other large veins beyond it; and the muscular tissue of the heart was in a state of tabby striation. The heart only weighed seven ounces.

CASE 4 has been already recorded at the Pathological Society, but shortly it is this. A boy, aged six, was admitted on October 8th, 1869, under Dr. Pavy. He had been taken ill seventeen days before admission, and his symptoms were those of well-marked typhoid fever, the pyrexia running as high as 105° on the twenty-seventh and thirty-first day of his illness. A rather copious hæmorrhage from the bowel occurred on the twenty-ninth day of the fever, and a second more profuse on the thirty-first, associated this time with epistaxis. This left him very blanched and exhausted, and he died four days later quite suddenly. At the inspection the muscular tissue of the heart was very pale, and the sub-endocardial muscle was markedly tabby from degeneration; the left ventricle was considerably dilated, and to this I think his sudden death may have been due. All the viscera were very bloodless and the lungs œdematous. The hæmorrhage from the intestine had come from a deep, almost perforating, ulcer in the mucous membrane of the descending colon, which with several others of like nature was situated on the mesenteric attachment.

In all these four cases there was a well-marked change in the muscular fibre of the heart. I have called it tabby striation rather than fatty degeneration, because all of us will admit that there is a degeneration of some sort—and therefore disease; perhaps all would not be willing to admit that its nature is fatty. I myself should allow that the change is one which does not yield very definite microscopical results. The muscular tissue alters and becomes granular; takes staining fluids badly and loses its striation—whether it is actually fatty may be a matter of question, though the change is one which is termed fatty degeneration by, I believe, all pathologists. It is not my purpose here, as I wish to treat the subject in its most practical bearings, to discuss the mode of production of the morbid material. I bring the cases forward as an anatomical basis for the assertion that simple bloodlessness, with of course the changes which are its consequents in the composition of the blood, is a cause of heart-disease, without entering into the question how the disease is produced. To the first three of them I do not think any objection can be taken, but to the fourth it may be said that the continued fevers are in themselves sources of muscular degeneration, and that the case being one of typhoid fever is a sufficient explanation without calling the hæmorrhage into account. This view is possibly correct, though the change described is but a very occasional accompaniment of typhoid fever. It may also be objected that the change occurred too rapidly, the hæmorrhage commencing but a few days before the child's death. To that I would reply that phosphorus-poisoning leads to changes of like nature in the muscles quite as rapidly as I suppose the anæmia to have done.

It is no new idea that anæmia leads to mal-nutrition of the heart. Walshe writes, "In cases where anæmia has either been persistently or with occasional intermissions sustained for a more or less lengthened period, it is probable that changes are effected in the structure and properties of the tissues of the heart;" and with special reference to the occurrence of fatty degeneration he writes, "Cardiac anæmia has frequently fallen under my notice as the immediate prelude to fatty metamorphosis." Ormerod, in his "Clinical Researches on Fatty Degeneration of the Heart," observed three cases similar to those I have given; Virchow has noted its existence in chlorosis, and Ponfick has described a form of fatty degeneration as the result of chronic anæmia and hydræmia.

The disease, too, called idiopathic anæmia is constantly, and is well known to be, associated with a similar change in the muscular tissue of the heart; though upon this class of cases the hæmorrhagic group have an important bearing, because we know nothing about idiopathic anæmia except what its name reveals to us, and there is always a suspicion behind it that simple bloodlessness may not be its essential element, and that the fatty heart may be part of that other something of which as yet we are in ignorance. Fatty heart ensuing upon recurrent hæmorrhage shows that the simple bloodlessness can and does produce a state of heart precisely similar to that found in idiopathic anæmia, and the two series of cases thus tend to corroborate and enlighten each other.

With the body of evidence thus obtained we may next associate certain ascertained clinical facts. The chlorotic heart is sufficiently well known hardly to need mention, but I may just say that in it, and not in it only, but in all forms of anæmia in women, the heart's impulse becomes diffused and displaced outwards; the first sound is sudden and excited, and associated with these are the subjective symptoms of breathlessness and palpitation. This subject has received attention in a very careful and suggestive paper by Dr. Pearson Irvine[2] in this country, and by several writers abroad.

There are many explanations of these various phenomena, but I can only say now that the best, or at any rate the safest, appears to me to be that derived from post-mortem evidence, and which demonstrates that anæmia is associated with degeneration of the heart muscle, and which therefore points directly to dilatation of the left ventricle as the cause of the symptoms. The heart in such cases is from all we know of the morbid anatomy of anæmia, actually in a state of fatty degeneration; it has become dilated, and hence the symptoms complained of. The same remarks hold good with regard to children, in whom there is no affection more common or brought about by a greater variety of circumstances than a persistent anæmia. For the past few years I have been in the habit of making observations on my out-patients at Guy's Hospital and the Evelina Hospital on the position and the sounds of the heart in these cases, with reference to the beginnings of heart disease, and as in women, so in them, the heart's impulse is generally widely diffused, often to an inch external to the nipple; the rhythm is irregular, while the sounds are for the most part considerably altered, the first sound being prolonged, confused, or thick, if there be not actually a systolic murmur. I believe with Parrot, Balfour, and others that temporary dilatation occurs in these cases, and leads to some incompetence of the mitral valve so long as it persists, and to this is due the systolic apex-bruit that is so frequently present. I am aware that some authors, of whom I may mention Fagge and Pearson Irvine, are of opinion that the bruit in many of these cases is due to eddying currents behind the mitral valve in a dilated ventricle, and I see no reason to object to this view as an alternative one. But if we accept the dilated state of the ventricle as a fact in anæmia, we may

[2] The paper in question was read at a meeting of the Royal Medical and Chirurgical Society, but has unfortunately never been published except in abstract in the Proceedings.

take it as granted from what we know of the conditions under which the mitral valve acts that there must also be regurgitation in a good proportion of cases.

So far I think the facts are clearly in favour of all that I have attempted to draw from them, and the subject even hitherto is one of such moment to so large a number of persons, that I would have the teaching in our text books much more decided than it is. Prolonged anæmia leads to fatty degeneration of the heart at all ages, and during the existence of such anæmia, it is therefore imperatively necessary that the heart be rested as much as possible, and the anæmia should be dispelled with all possible celerity.

But this is not my main point. I should rightly be told that there is nothing new in this. There is not; but it is a step necessary to develop my main contention which follows—viz., that anæmia, by leading to dilatation of the left ventricle, is a fertile source of valvular and chiefly of mitral disease. If what I have said be true, it follows that this is highly probable. Anæmia leads to fatty changes in the heart. Fatty changes in the heart favour dilatation of the left ventricle. Dilatation of the left ventricle disarranges the coaptation of the mitral flaps, and mitral regurgitation results, the so-called curable regurgitation. But if this regurgitation is prolonged for any length of time, or is frequently repeated, as is not unusually the case in many instances of chlorosis, surely from the passage of blood in two directions instead of one, and particularly when the backward stream is such a twisted and rough stream, if I may use such a term of fluid, as is the regurgitant mitral stream, there must be a considerable increase of friction or wear and tear to the valve, and chronic disease of the tissue of the valve is started, which by and by—it may be years after the original cause has ceased—leads to permanent thickening and disease of the valve. This train of events, I say, has much of probability in its favour; yet where is there actual evidence of the existence of the evil? I appeal in vain to the standard authorities. Nevertheless I think it is to be found. It is not possible to prove the point to demonstration, as I have the dependence of muscular changes upon the anæmia, but its probability may be shown by an appeal to some facts which seem to me to be of considerable significance. First of all, I would mention that when there has been prolonged regurgitation on the right side, the tricuspid is generally considerably thickened. It is true that, under such circumstances, it never, so far as I know, approaches to any condition that could be called stenosis; but this deficiency in the parallel between the two valves is, I think, sufficiently accounted for by certain mechanical differences between the two sides, and by the difference in the amount of work performed by each. Secondly, I would say that but seldom in cases which are due to a primary muscular fault and to consequent failure of the mitral valve by stretching, do we find the mitral condition one of simple dilatation; the dilatation is very commonly associated with more or less thickening of the chordæ tendineæ and the edges of the valves. Here, again, we find no stenosis; but contraction takes time, and this class of cases is in the main composed of senile muscular failures and degenerations, which are rapid in their course. Take, next, another fact, less well known than it ought to be—viz., that in a large number of cases of chronic renal disease there is a notable and sometimes extreme thickening of the mitral flaps.

The facts bearing upon this that I have collected are these. In 192 consecutive cases of chronic renal disease of various kinds tabulated from our post-mortem records, 72, or more than a third, had some thickening of either the mitral or aortic valves, or of both. In 49 of these the mitral was either thickened or actually contracted. The mitral was contracted, and therefore very thick in nine cases, and all nine, without exception, were cases of small, contracted, or granular kidney. Ninety-seven of the 192 cases were examples of granular kidney, and of these 45 had more or less thickening of the valves. Again, of 215 cases of what appear in our records as primary heart cases, (the 192 given above figure as chiefly renal, so that the two series are distinct,) 31 were cases of granular kidney, and 9 of these were again examples of mitral stenosis, and all except three were mitral cases rather than aortic. I say rather than, because the aortic valves may here and there have been a little thick; but the mitral was the valve which was chiefly affected. These figures leave, I think, no room for doubt that chronic thickening of the endocardium is associated with chronic renal disease. I have been in the habit of teaching and demonstrating this for some years in our post-mortem room, and had thought that it was a somewhat novel observation, but I can no longer do more than say that it is an independent one, for others have now noted the same fact, and I am glad to be able to acknowledge that so late as yesterday I came across this passage, which I am almost ashamed to confess I had not noticed before:—"Disease of the aortic valves is common in the class of persons who acquire the gouty heart, and it is my strong conviction that mitral disease of the chronic sclerotic or contracting form found in elderly persons, especially in the form of regurgitation, is also found." Dr. Milner Fothergill, to whose work, "The Heart and its Diseases," I am referring, is there talking of the relation of heart disease to renal disease, and the thickening he attributes, and in part, no doubt, correctly so, to hypertrophy as a consequence of strain. It will be seen that I agree with him in his conviction, and contribute these data wherewith to support us, but I would supplement his remarks by saying that dilatation of the heart is common in these cases, and strain of some sort becomes all the greater, if, in addition to the greater dragging of a thickened ventricle, more forcible impact of blood against the flap, and the greater friction of the valves one against the other, there be added also the additional friction of a regurgitant blood-stream; and it seems to me to be probable that part, at any rate, of the chronic valvulitis is set up by the wear and tear of the regurgitant stream. But it may be said that the chronic thickening of the valve in old renal disease is due to an acute endocarditis toned down, and, if so, it would cease to have any bearing upon the question I am more particularly considering—viz., the influence of the anæmic heart upon valvular disease. I know it is taught in books that acute endocarditis is common in renal disease. Dr. Roberts, on the "Etiology of Acute Endocarditis," says, "Almost invariably the affection is due to some blood-poisoning, especially in connexion with acute rheumatism, but also in Bright's disease, pyæmia, &c."[3] Bright's disease is put first, after the greatly preponderating influence of acute rheumatism. Hayden,[4] after speaking of rheumatic endocarditis, says, "Next in point of frequency, it occurs, although not so often as pericarditis, in connexion with Bright's disease, and in this association it is usually fatal." Walshe,[5] too, writes, "Bright's disease, rheumatism, and pyohæmia are the main diathetic acute specific affections that clearly promote the occurrence of endocarditis." May I be forgiven for my presumption if I say these learned authors are all wrong. No, I will not be too dogmatic, lest, like a recent critic of the Lord Chief Justice on a legal question, I be set down as one of the most juvenile members of the profession; but I will say, May I beg your pardon, sirs, but the experience of Guy's Hospital and St. Mary's Hospital is completely against you. In our post-mortem records from 1866 to 1871, with an average of about seventy cases of Bright's disease annually, there is only *one* case of simple acute endocarditis in association with Bright's disease, and I state this on the authority of Dr. Hilton Fagge, who gives these figures in Reynolds's System of Medicine.[6] The late Dr. Sibson, in the same work, gives 207 cases of Bright's disease recorded at St. Mary's Hospital, and he only found one case of acute endocarditis. This is surely sufficient material to enable us to say that some mistake has been made on the point, and Rosenstein[7] seems to me to have expressed the facts correctly when he says, "Acute or chronic inflammation of the kidneys is not often the cause of endocarditis, but there are some recorded cases."

It is quite a mistake to suppose that acute endocarditis, in any but the most trifling proportion of cases, is present in renal disease; and I can only account for such an assertion by supposing that the chronic thickening of which I have made mention has been recognised as being frequently present, and that from it the pre-existence of an acute endocarditis has been assumed. But if so, it is an assumption quite without warrant. Chronic indurations are more often the parents of acute inflammation than are acute diseases the parents of chronic. So then I take the chronic thickening of the valves found in renal disease to be dependent in part upon dilatation of the ventricle and regurgitation of the blood through the valve, and so it is available as evidence in favour of a similar change being brought about in a

3 Handbook of Medicine, 1873, p. 643.
4 Diseases of the Heart and the Aorta, 1875, p. 749.
5 Diseases of the Heart, 4th ed., p. 256.
6 Vol. iv., p. 620-21.
7 Ziemssen's Cyclop., Eng. trans., 1876, vol. vi., p. 97.

similar manner in the fatty heart of anæmia. I might, if I cared to do so, even claim the renal condition itself as acting upon the heart by way of the anæmia which exists in such case, but I do not do so because I am one of those who quite adhere to the view that high tension is in great measure the cause of the dilatation of the renal heart.

I must very hurriedly give one other additional link of evidence, which I ask to be interpreted with the light of the foregoing facts. It is the well-known observation that mitral stenosis occurs in overwhelming proportion in women. The drift of this fact will be seen at once from what has gone before. Mitral stenosis is a form of valvular disease to which a rheumatic origin is denied by many, and when this cause for it is taken away we are stranded in the unknown, unless, indeed, we are to rest content in the happy vagueness of poor Topsy that it "growed," should some such interpretation as I now suggest not come to our aid. A congenital origin is supported by some, but it seems to me hard to reconcile such an hypothesis with the fact that mitral stenosis is not common in childhood. But here I am at issue with writers upon heart disease, so I must give the grounds of my belief. I have notes by me of ninety-six or ninety-eight cases of heart disease in children which have occurred in my own practice, and in only one have I put down decidedly that the case was one of mitral stenosis. In five others the murmur was systolic, and only questionably presystolic, and in one or two others there was a rough first sound, and all the rest were cases of well-marked mitral regurgitation. I should therefore say that the clinical features of well-developed mitral stenosis are uncommon in childhood, though it is not uncommon to meet with cases where that condition is in all probability in the course of development; and for my own part I do not think there is any escape from the conclusion that some of the cases of mitral regurgitation in children furnish some of the cases of the mitral obstruction of adults. With regard, however, to the question of the rheumatic origin of mitral stenosis, I am quite convinced of the propriety of giving an affirmative answer to that question for the larger number of cases. Before we conclude that a form of heart disease is not rheumatic, we must take a much wider view of rheumatism and its relationship than is comprehended in establishing the previous occurrence or not of rheumatic fever in a particular case. A careful analysis of any large series of cases so examined will show without doubt that many contracted mitrals have rheumatic associations when superficially they have not appeared to do. Hayden, Hilton Fagge, and Dyce Duckworth all agree in this, and the latter has collected 264 cases from his own practice and that of the two before-mentioned writers, and he finds that 60 per cent. were of rheumatic origin, using that term, as Dr. Duckworth puts it, in words which, I consider, very aptly chosen, "in a comprehensive but not inexact sense." I am obliged to say this much on the question *in limine*, though it is really a little beside the point, lest otherwise the objection should be made that, though mitral stenosis is thought by many to be non-rheumatic, that is not really the case. Upon the point in question it matters very little actually what view we take, because the rheumatic state is one which is accompanied, and often only disclosed, by a state of persistent anæmia. But I, nevertheless, accept the figures I have quoted, and we have yet remaining 40 per cent. of mitral stenosis, the majority of them, be it remembered, in women wanting an explanation of their origin. Dr. Fagge has suggested that possibly scarlatina or diphtheria may account for them, and I have been at some pains to follow up this clue, but I have not obtained any information to make me think that it can be a cause of heart disease in any but a very small proportion of cases. Mr. Shirley Murphy, a late resident medical officer of the Fever Hospital at Islington, and now medical officer of health for St. Pancras, tells me that of the cases of scarlatina admitted to that institution about 5 per cent. evolve a systolic bruit during the course of the disease, but that he only knew of one case in which it was anything more than temporary. My own experience, though less wide, is considerable, and it all points to the same conclusion—that scarlatinal endocarditis is not common, and any persistent heart disease from this cause is still less so. Moreover, we have the further difficulty to encounter, supposing we could admit that scarlatina was an important factor—viz., why scarlatinal endocarditis should fasten itself so all but exclusively upon women. Now, the suggestion I offer as the elucidation of this obscure point in the etiology of heart disease is this. Mitral stenosis is not uncommon in advanced renal disease, and lesser degrees of mitral thickening are yet more common. I consider the valvulitis to be set up by regurgitation of blood through the mitral, which in its turn is dependent upon the dilatation of the left ventricle, so common in Bright's disease. Both pathological and clinical evidence has been adduced to show that anæmia is associated with deteriorated cardiac muscle and dilatation. Anæmia is an extremely common affection both in women and children, and it is by no means very common in men. Is it then anything improbable that much of the mitral disease which is met with in women is the outcome of the mitral regurgitation which is seen so commonly in childhood and young adult women, and that this is dependent upon the dilatation of the heart in the course of the anæmia?

The question of treatment is quite a distinct one, and upon it I shall not enter further than to say that, impressed as I am with the probable truth of the view that I have put forward, I do not find that the anæmia of young persons is considered seriously enough. A woman comes to the out-patient room pale and panting with amenorrhœa; it is considered sufficient often enough to give her an ounce of compound mixture of iron three times a day, and she is packed off as only a case of anæmia which iron always cures. Our students, if they examine her at all, are only alive to a *bruit de diable*—a matter practically of very little moment, while the position of the impulse and the quality of the first sound are unheeded. But if it be true that a state of prolonged anæmia lays the foundation for permanent valvular disease, surely some very decided teaching on the subject should be inculcated in our text-books. It would, I think, be well, at any rate, to insist more absolutely on the necessity for rest in these cases, on the administration of heart tonics, such as belladonna and digitalis, and of sedatives, as bromide of potassium and hydrobromic acid; while in the matter of hæmatinic, experience has sanctioned the use of iron in a quite unequivocal manner. But I believe with Balfour that it should usually be administered in larger than the customary doses, and in such a form as to render them innocuous to the palate or digestion.

Weymouth-street, W.

THE TREATMENT OF RINGWORM.

BY WYNDHAM COTTLE, M.A., M.B., F.R.C.S., &c.,
SENIOR ASSISTANT-SURGEON TO THE HOSPITAL FOR DISEASES OF THE SKIN, BLACKFRIARS.

THE perusal of Mr. Smith's very interesting paper on the diagnosis and treatment of ringworm in THE LANCET of Jan. 10th, 1880, and following numbers, has afforded me much satisfaction. It is gratifying to find that an independent observer advocates the same principles in the treatment of this disease that I have already laid before the profession, and that he has been led to adopt those views by the same line of reasoning that I then urged in their behalf. It seems to have escaped Mr. Smith's notice that in a paper read before the Dermatological Section of the British Medical Association at the meeting of the Association at Cork in August last, I advocated the treatment of ringworm in recent cases, and in certain situations, by the ordinary parasiticides, and more especially by the use of salicylic acid, while I recommended the application of croton oil to the more inveterate seats of the disease, so as to produce a deep pustular rash. As Mr. Smith seems to me from the description he gives to carry this treatment to an unnecessarily severe extent, I may perhaps venture to recapitulate my mode of procedure, which has been arrived at after a long series of experiments.

I found in practice that ringworm readily yielded to treatment (1) when situated on the parts of the body not occupied by deep-rooted hair, (2) when it occurred in infants, (3) in recent cases in healthy children. I accounted for this clinical feature of the disease in the first two classes of cases by the non-existence in them of deep hair-follicles, and in the third class by the fungus not having had sufficient time to spread far into the hair-follicles, and to its having fallen on a soil not congenial to its development. I also constantly encountered cases in which, after the most energetic and assiduous treatment, the disease still flourished in spite of the measures employed. I concluded that this persist-

ence was attributable to the parasite having invaded the deeper portions of the hair root, and that the remedies employed, though they had cleared the superficial structures of the fungus, had failed to reach it in its more remote situations. In long-standing examples of ringworm the parasite prevades not only the epithelium and hair, but also makes its way to the bottom of the hair root, so that the microscope detects it at the very extremity of the hair bulb, and it is allowable to infer that it also penetrates that portion of the hair root which remains behind when the hair is extracted. That it abounds in the lining membrane of the follicles through its whole extent can be often demonstrated in those cases where, loosened by inflammatory action, the follicular sheath can be extracted with the hair. It is this propensity of the fungus to extend itself deeply beyond the hair that renders the most careful epilation inefficient to eradicate the disease, since, even when most successfully performed, it can only remove the hair and not its contiguous structures.

In applying remedies for this complaint, it is necessary by some means to bring them in contact with the deep-seated parasite, and we may be quite sure that if we can succeed in destroying it when buried beneath the surface, that which is superficially situated will have perished also. I thought that a penetrating subtle fluid was more likely to find its way into the hair-follicles than a thicker fluid or an ointment, unless the ointment were most thoroughly rubbed in—no easy matter on the tender scalp of a delicate child. I find that such is the case. I believe that strong solutions of perchloride of mercury are of such recognised efficiency in ringworm from the amount of alcohol that is usually prescribed in these lotions aiding the penetration of the salts they contain. Such solutions of mercury have been known to produce disagreeable effects. After many trials, I find no one substance so efficacious and convenient as salicylic acid. It is a parasiticide, a slight irritant, and exercises no toxic influence. I have prescribed it largely as an ointment, and also as a lotion; and it may often be combined with other agents with benefit. It is soluble in alcohol or rectified spirits of wine. However, we have a large number of bodies at our choice that act excellently in the way I mention—e.g., turpentine, or alcohol itself, or benzine, or the purer forms of the paraffin of commerce.

Many observations have taught me that in those portions of the scalp where kerion or an abscess supervenes, on the recovery of the part from such accident, no trace of ringworm was to be found, and that the sites of such abscesses remained free from disease, oases of health in the midst of the implicated scalp around.

Pus and the inflammatory process which gives it birth have long been recognised as inimical to fungoid life, and I concluded that in these cases of kerion the parasite had perished owing to its having been subjected to the action of the products of inflammation in its more profound and inaccessible situations. I saw that if I could succeed in producing a like condition I might hope to obtain a like result, and I have found that it is so. I thought that it would be sufficient for my purpose to set up a pustular rash involving the tissues to the depth of the hair-follicles, and that the formation of a subcutaneous abscess was unnecessary.

The various irritants that may be applied to the skin are wont to be followed by very dissimilar effects: for instance, mustard or heat will usually produce a superficial erythema; cantharides a sub-epithelial effusion; chrysophanic acid an erythema with a subcutaneous œdema; the more powerful chemically acting agents, as the caustic alkalies and strong acids, a local necrosis or slough; while localised suppuration, e.g., a pustular rash, most readily follows the application of antimony, chloride, or croton oil, but the antimony salt is apt to give rise to sloughing.

My earlier attempts to cause suppuration in the portions of the scalp occupied by inveterate ringworm were made with sulpho-carbolate of barium, an irritant and parasiticide combined of no mean potency, but I abandoned its use in favour of croton oil, since I found this agent more certain and rapid in its action, and able to produce a more perfect crop of pustules.

The method I am now using is the following:—

In recent Cases, &c.—In ringworm of the body, in infants, and in cases of recent origin on the scalp in older children, after the hair has been cropped short around the affected spots (if on the scalp), and the part well scrubbed with soft soap to insure the removal of crusts, &c., I direct the affected part to be thoroughly soaked and rubbed, three times daily, with a solution of salicylic acid in alcohol (thirty grains in an ounce), or with benzine, &c. The diseased hair, crusts, &c., must be cleared away as often as they are reproduced. This is generally all that is required, such cases as those indicated readily yielding to these measures. If any patches show a tendency to linger, they may be painted with glacial acetic acid, or blistering fluid, or carbolic acid. Solutions of salicylic acid in alcohol of themselves, however, set up considerable skin irritation, and sometimes a crop of pustules.

Chronic Ringworm.—In chronic ringworm of the scalp this treatment, however, will not always end the case, and it then becomes advisable to have recourse to the formation of a pustular rash. To effect this the tardily mending spots should be freely painted with the linimentum crotonis (B.P.) I find this preparation more efficient than croton oil itself, I fancy owing to the spirit it contains favouring its penetration into the follicular orifices, and bringing it into more close contact with the skin. Washing the part with alcohol or ether before applying the croton oil makes its action more certain, and, I believe, for the same reason. If the croton-oil liniment does not produce suppuration, I repeat it, and, if necessary, blister the skin before putting it on; or a liniment containing more croton oil may be used. The parts become covered with a yellow crust, which should be removed as soon as practicable by poulticing or softening with oil. Most of the diseased hair will come away with the crusts. Any that remain should be carefully removed with forceps, and the search for them constantly renewed. After the removal of the scabs and hair the salicylic acid should be freely and frequently applied. It is practically of advantage to produce suppuration on one side of the head only at one time, and to allow the parts to soundly heal before the other side of the head is attacked, in order that the child may be able to rest its head on the pillow without inconvenience.

The rapid drying of the croton liniment prevents the risk of the transference of the croton oil to the face, &c. It is not necessary to produce a real subcutaneous abscess or kerion to effect the destruction of the parasite even where deep in the skin. A copious pustular rash is all that is required for the purpose, and this less severe treatment may be carried out over considerable tracts of the scalp at the same time. The production of pustules by croton oil is neither adapted to, nor requisite in, cases where scalp irritation already exists.

In all chronic cases of ringworm suitable internal treatment should be adopted, for it is of the first importance to remove that condition of nutrition, whatever it may be, that favours parasitic growths on the skin.

A few days ago a most striking case came before me. A little girl, with other members of her family, had been affected with tinea tondens for nearly two years, and subjected to much careful treatment. To one particularly obstinate spot, the original seat of the disease, I had applied croton liniment three weeks previously. Microscopic examination detected conidia in several of the hairs taken from other portions of the scalp, while in the hair that remained where the croton oil had been used, though showing signs of inflammatory action, no vestige of the parasite could be found.

Although the deep abscesses sometimes occurring in cases of ringworm cause destruction of the hair roots and permanent baldness, I have not seen any such result follow the use of croton oil as I employ it. The application is painless, and the only ill result is the discomfort of a pustular rash on the part. We are all familiar with its effect when applied to the chest as a counter-irritant. Its action when used on the scalp is similar, and causes a like amount of inconvenience. The advantages of this method of treating ringworm are—

(1) It is comparatively painless, easy and agreeable to carry out; and if salicylic acid be employed there is no unpleasant odour.

(2) No poisons are used, and therefore no fear of absorption exists.

(3) The inconvenience of a pustular rash on the scalp (if it becomes necessary to resort to the croton oil) is less irksome to the child than the acute pain of the ordinary vesicating remedies.

(4) No permanent loss of hair results.

(5) Many intractable cases rapidly mend when so dealt with.

Savile-row, W.

HUMAN AND ANIMAL VARIOLÆ: A STUDY IN COMPARATIVE PATHOLOGY.

BY GEORGE FLEMING, F.R.C.V.S.,
ARMY VETERINARY INSPECTOR.

(Continued from p. 445.)

IT is curious to note that, in 1863, the same (Lyons) Commission was desirous of discovering whether small-pox could be transmitted to animals, and they made a number of inoculations, but all these apparently failed. Subsequently the animals were inoculated with human vaccine, and the same negative result followed. But it was never suspected then that the vaccination failures were due to the previous variolation, supposed to be ineffective, and it was concluded either that human vaccine takes with difficulty on the bovine species, or the animals experimented upon had previously been affected with cow-pox. It would thus appear to be demonstrated in the clearest manner that variola and vaccinia are related, or rather opposed, to each other in the bovine species, in the same way as they are in mankind. The negative results following variolation in animals which had been successfully vaccinated, was a crucial test of the soundness of this demonstration. Three animals—a cow and two calves—were variolised and vaccinated at the same time, the small-pox matter being inoculated on the left side of the vulva, the vaccine lymph on the right. In the three there appeared on the right side the very characteristic vaccinal eruption, and on the left the typical papular eruption engendered by variolation, as in two of Ceely's experiments.

To prove whether, after all, the papular eruption produced by small-pox virus might not be a mild kind of cow-pox, the feeble eruption of which could, by a methodical cultivation on bovines, become more developed, its transmission was attempted to other cows; for the eruption differed from human small-pox in being always local, while the papules, neither in volume, external characters, nor development, bore the slightest resemblance to that disease; whereas by its localisation, development, and the absence of general phenomena, it did somewhat resemble cow-pox, though in other respects it widely differed. Three calves inoculated from the fully-developed eruption with all the care possible, showed still less local alteration, while with a young bull it entirely failed, and subsequent vaccination was most successful. From this it was concluded that the variolic virus, instead of being cultivable in the ox tribe, loses its activity, and scarcely produces any effect in the second generation.

Was this eruption, then, merely that of modified small-pox? The results of small-pox inoculation on man are nearly as well known as natural small-pox itself, and there could be no mistake in the result if this bovine eruption was successfully re-transmitted to the human species. With the object of proving this, an unvaccinated infant, three months old, was inoculated with a very small quantity of serosity obtained by scraping some of the papules on a variolised cow. Four days afterwards on one of the punctures a pimple was noticed, which soon assumed all the characters of a vaccinal pustule; and in nine days it was large, umbilicated, surrounded by a red areola, very irregular at its periphery, and covered on its surface with a kind of small vesicle; it was *aquarellée*. When opened, only a very small quantity of fluid could be obtained from it to inoculate the arm of another child. Next day the infant was feverish and ill, and on examining it carefully a great number of small pimples were found on the face and trunk; on the following day these were fine variolic pustules, the majority of which were umbilicated, and formed a quasi-confluent eruption. In a week the pustules were desiccating and the child recovering.

The child inoculated from this one had three punctures on each arm, all of which had a *bouton;* in eight days from inoculation the development of these was complete, and they so closely resembled vaccine pustules that several competent persons asserted they were such. The next day two small vesicles appeared around each pustule, and in four days some small-pox pustules (about fifteen) showed themselves on the face and other parts of the body. The child did not appear to be unwell, and the slight general eruption disappeared rapidly without leaving any traces.

Thus, in a second generation in the human species the variolic virus from the cow had produced much better local effects than in the first, and incomparably feebler general effects. What might it have been in a third or a fourth generation? The fear of creating an outbreak of small-pox in the hospital brought these transmissions to a conclusion. But even the very decided results obtained did not suffice to satisfy the Commission. After all, the eruption on the children, though it appeared to be due to nothing more than direct inoculation of human small-pox, might be only generalised vaccinia, which some authorities assert does occur. But such a confusion between the two diseases was proved by the foregoing experiments to be impossible. Deposit humanised vaccine beneath the skin of a calf, and an eruption of unmistakable vaccinal pustules is obtained, which can be indefinitely transmitted to animals of the same species. But inoculate with small-pox virus, and there is only an insignificant papular eruption, the transmission of which from one calf to another is extremely difficult, if not impossible.

To meet any objections, however, that might afterwards be raised in this respect, two calves—a male and a female—were inoculated with virus from the last-mentioned child. In seven days, in both animals there was a somewhat microscopic papule at the seat of puncture. One of these papules—on the scrotum of the male—was used for the inoculation of another calf, but the result was absolutely negative; proving, in the first place, that the virus transferred from small-pox infected man to bovines, and carried back to man again, is still small-pox virus, and is not converted into cow-pox virus; and in the second place, that small-pox is not vaccinia.

Some experimenters had previously attempted to inoculate the horse with human small-pox, but met with only negative results. The Lyons Commission undertook several series of experiments on this animal, somewhat similar to those on bovines, and arrived at analogous conclusions. The horse was as susceptible of inoculation as the ox tribe, and the same phenomena were produced; but the papular eruption developed at the punctures was so evident, that no doubt whatever could exist as to its presence and its specific character. Indeed, it was so greatly developed that inexperienced observers might have mistaken it for horse-pox, particularly at the commencement. But in horse-pox, as in cow-pox, and even more so in the former, there is a secretion and the formation of a crust; but these are nearly, if not quite, absent in the inoculated variola. The same experiments were made in vaccinating after inoculation, and *vice versâ*, as with the ox, with exactly the same results. The horse was also proved to be as little adapted to the cultivation of small-pox virus as bovines. Three children were inoculated from the horses, and though the phenomena observed are of considerable interest, yet I cannot allude to them in this place, but will merely remark that the patients offered symptoms, mild in their degree, similar to those which follow small-pox inoculation. The result arrived at was that, as with the ox, the horse returns the small-pox virus to man just as it receives it. But the production of variola in the three children was followed by a mild attack of natural small-pox in an unvaccinated infant in the same room; and its mother, who had been vaccinated as a child, was soon after affected with a true varioloid eruption, with fever and other signs of general derangement.

The variolic virus obtained from the equine species was cultivated in mankind to the fourth generation, and produced a local and somewhat modified general eruption. From the second generation horses were inoculated, and only the typical variolic exanthem was developed—never the unmistakable horse-pox. Transferred from the horse again to the ox, in order to be assured that the eruption engendered by the cultivation in man of the small-pox virus, transferred originally from him to the horse, was not that of vaccinia, another series of experiments on cattle was instituted. Many horses were inoculated, and the conclusion arrived at was, that when carried to and cultivated on the cow, after producing in mankind, for several generations, local eruptions altogether identical in appearance to vaccinia, the variolic virus of the horse only develops the phenomena of variola, as in the bovine species.

Thus it will be seen how earnestly and exhaustively the Lyons Commission accomplished its task, and what con-

clusive results were arrived at. We can find no evidence anywhere in their report that the small-pox virus was merely deposited in a little pouch, and re-inoculated from it again. On the contrary, marked phenomena were developed in every instance, and the crucial manner in which one series of experiments was made to test or control the results arrived at in another, left no room for doubt or error. Many of the experiments were original, particularly those on the horse, of which there were nine series.

The Commission, in closing its report, refers to the positive experiments of Thiele and Ceely as opposed to their negative ones—experiments which, they say, were extremely important, and which, notwithstanding the erroneous conclusions of their authors, will always hold a considerable position in science. Thiele and Ceely, they add, each experimenting independently, succeeded in giving cow-pox to cattle by inoculating them with human variola, and this cow-pox became the origin of an excellent vaccine, which was cultivated in infants for more than twenty years, in certain parts of England, Germany, and Russia, and has passed through a great number of generations. It is not denied that they succeeded in obtaining positive results from their attempts to inoculate the cow with variola; but that which is astonishing, after the results arrived at by the Commission, is not these positive facts, but the negative results which other experimenters almost unanimously acknowledge. But had Thiele and Ceely well observed and closely interpreted the facts the manifestation of which they elicited? Is it really true that they succeeded in converting variola into vaccinia? The Commissioners think not, and are of opinion that the children they inoculated with their variolic vaccine had nothing else than small-pox, the same as the children in the Hôpital de la Charité. This kind of inoculation is now-a-days well known, and it is really not necessary to have recourse to a new inquiry to appreciate its signification with regard to the doctrine of identity of variola and vaccinia. What did Thiele and Ceely communicate to the cow? Was it cow-pox? It was nothing of the kind. The excellent drawings made by the Commission representing the characters of the eruption produced in the ox by variolisation, are evidence that there is not a very distant analogy between cow-pox and the results of small-pox inoculation. The Commission had not seen Ceely's drawings, consequently it did not know if they differed from those it produced; but it ventured to assert that if they differed from these, and represented eruptions of veritable small-pox, the artist had not been absolutely inspired by the real truth. Nothing that Thiele and Ceely had done in inoculating the cow with variola could have produced anything resembling cow-pox, not even the extensive variolous wounds that were obtained, by making long and deep incisions in the skin, and pouring large quantities of small-pox virus therein. But if their cows did not have cow-pox, how were these two experimenters able to vaccinate children with the matter from them? The cows could not give that which they had not, says the Commission; and this is why, it affirms, the children operated on by Thiele and Ceely received small-pox; and it was nothing but small-pox which was developed on all their inoculated subjects. It was variola such as the Commission had seen in its own experiments—variola limited sometimes to the local primary eruption, and quite like vaccinia, variola often accompanied by a secondary eruption, which gave it its special physiognomy. Between the descriptions of the two experimenters, and those given by the Commission as to the eruptions which offered benignant characters, there was not the slightest difference; and if the children inoculated by the latter were affected with variola in consequence, so should those of Thiele and Ceely. If the virus of the latter is really vaccine, then it should give cow-pox to the cow at once, like the Jennerian vaccine; if not, then it will only produce the papules of the variolic eruption.

With regard to the pretended innocuousness of Thiele and Ceely's so-called vaccination, reported to be as absolutely harmless as true vaccination, the Commission did not believe that it was due to the passage of variolic virus through the bovine species, as it was found that it underwent a considerable attenuation in the organism of the ox, and could only be propagated through a very limited number of generations; but when returned to the human species, it appeared to regain all its activity. When first transmitted to man from the ox or horse it caused a very abundant, almost serious, secondary eruption, while all the children inoculated from this transferred virus had a discrete and almost insignificant eruption. The Commission clung to the opinion that Thiele and Ceely only practised variolation, instead of vaccination; and they therefore gave the children they inoculated better protection than if they had been vaccinated, if they did not expose them to more dangers. A question of much interest is that of the innocuousness of mediate variolation, and if it be proved to exist the Commission thought recourse would at once be had to Thiele and Ceely's method when good vaccine lymph could not be procured. But there is the grave danger of *contagion;* for in passing through the organism of animals the small-pox virus loses none of its infectious properties. Experience has only too well proved this, and this is why mediate variolation, like direct variolic inoculation, would create, if it became generalised, permanent centres of infection, which would soon cover nearly the whole globe. This danger does not exist with the vaccine virus; and therefore it is that vaccination will always hold the first place in the prophylaxy of small-pox.

I think I have now offered sufficient evidence of a clinical and experimental kind to prove that the variola of man is not that of the cow, and that by no possible means can the virus of the one be transmuted into that of the other. The bovine organism cannot reduce a general eruptive disease, due to an exceedingly infectious virus, to a merely contagious and very mild disorder, accompanied by a limited local eruption. No more can the organism of the sheep; for the many experiments which have been performed with the small-pox virus have not modified it in any respect, and it has retained all its original infective properties. Neither can the human organism transform vaccinia into variola, for had this been possible, surely the millions of vaccinations which have been made under every condition during this century, would have afforded us some evidence of such capability! If vaccinia cannot be transformed into variola, as little probability is there that variola can be changed into vaccinia.

Years ago the veterinary professor, Hering, had repeatedly inoculated the cow with vaccine lymph, and found that this gave it renewed potency. The veterinarian Numann made similar observations, and incidentally noticed that the bull is as susceptible as the cow; also that the horse and ass are, but that their vaccine, when re-transferred to man, is slower in its action than that from the cow. Besides, the transmission of vaccinia by inoculation from cow to cow is accomplished without any difficulty, and the successive transplantations of the same lymph does not appear to have any influence on the development of the resulting pustules. In the very numerous experiments of Depaul, it was found that the pustules of the last inoculated animal offered the same characters and dimensions as those of the cow first inoculated. How is it, then, that the vaccine virus can be transmitted for generations from cow to cow, cow to horse, or horse to horse, retaining all its primitive potency, and even becoming revivified when carried from the human species; whereas the virus of human variola only produces a local papulation in them, quite unlike vaccinia, which can rarely be reproduced more than two or three times, and which always develops small-pox when inoculated again on man?

From all the evidence I have adduced, there is every reason to think that those experimenters who imagined they had produced vaccinia by inoculating the cow with variolous matter, were in error; and if it be true that they employed the virus from the cow in vaccination, then if the above evidence be accepted as trustworthy, there is reason to believe that it was merely the small-pox virus returned again to the human species, just as it was obtained from it. There are instances on record in which the most serious results have followed the attempts of imitators of Gassner, Thiele, Ceely, and Badcock—outbreaks of small-pox resulting. Have the widespread epidemics of small-pox in recent times been to any extent due to these inoculations of the cow with human variola, with the view of obtaining vaccine lymph?

However these questions may be answered, one thing must be looked upon as definitely settled, and that is that small-pox is not cow-pox; they are independent and distinct members of a family group, and can no more be transmuted or converted into each other than can two dissimilar plants or animals. The error in supposing that they are transmutable—or, rather, that small-pox can be converted into vaccinia was due, in all probability, to inacquaintance with experimental methods, an inability to appreciate the results of experiments, and imperfect knowledge of animals and animal disorders. No control experiments were resorted to, as with those of the Lyons and Turin Commissions, and what may have looked like vaccinia was accepted as vaccinia. In no

other way can I account for what must now be considered a grave error.

In insisting upon the correctness of this view, and urging its importance not only with regard to comparative pathology, but also the prevention of an odious and destructive human plague, I am well aware that I am placing myself in an attitude of antagonism to very high and estimable medical authorities in this country; and especially Sir Thomas Watson, who in a paper in the *Nineteenth Century* (which paper has been recently republished in a small volume) says, "The truth is, that the vaccine disease is really small-pox rendered mild by passing through the system of the cow; the great object of inoculating the small-pox was to produce a benignant form of the disease by diminishing the number of its pustules."

I have shown that there is no relationship between the prevalence of cow-pox and small-pox, and that the one may, and does, prevail in localities, and at times when and where the other is not seen. In Denmark, for instance, small-pox is all but extinct, and yet cases of cow-pox are far from rare. The difficulty experienced by those who believe in the unity of the two diseases, in accounting for this circumstance, is attempted to be got over in various ways. Bollinger, for instance (*Sammburg. Klinischer Vortrag*, No. 116), thinks that cow-pox owes its existence sometimes to humanised vaccine—the most extended and extensive of all the forms of variolic contagium, he says. "We must look," he writes, "to humanised vaccine as the source from which the greater number of cases of bovine variola have their origin." A few instances are certainly recorded in which, apparently, accidental infection of cows by recently-vaccinated people has occurred. Osiander alludes to the case of a cow which was so infected by a boy who had been vaccinated a short time previously. In the Prussian Veterinary Reports on Contagious Diseases among Animals for 1870-71, Koch reports that the vaccination of the people on a farm occasioned the infection of the cows with cow-pox, and in the same reports for the following year an outbreak of vaccinia was announced as having taken place among a lot of cows, consequent on the revaccination of three dairymaids. In three weeks the disease appeared, and gradually extended, so that in fourteen days of twenty-six cows only three escaped. The majority of the cows had only a few pustules upon the teats, but others had a number upon the teats and udder. In the same reports for 1874-75, Damman describes an outbreak of vaccinia in several sheds in the Rugen Kries, while in the district many children had been vaccinated, and the vaccine vesicles were fully developed. Schneider informed Bollinger that in 1876, after several children in a certain locality had been vaccinated, four cows in two sheds in the same place became affected with cow-pox; two dairymaids became accidentally inoculated from these, and one of the women communicated the infection to her children, who had not been vaccinated. Reiter also told Bollinger that in cowsheds where he vaccinated cows, several non-vaccinated animals showed the characteristic indications of the disease, which ran its course in the ordinary manner.

Though there is no reason to believe that cow-pox is infectious—i.e., virus *volatile*,—yet there is as little reason to deny that cows may not become affected through contact with newly-vaccinated persons, provided some vaccine lymph obtains access through a sore. But it is evident that this chance inoculation will not account for many, if any, of the reported cases of cow-pox.

(To be continued.)

FALL FROM A HEIGHT OF OVER SEVENTY FEET; RECOVERY.

BY STEPHEN KARTULIS, M.D. BERL.,
HOUSE SURGEON TO THE GREEK HOSPITAL, ALEXANDRIA.

THE happy result of a fearful accident, attended with such severe injuries as shown in the following case, is, I believe, sufficient to justify me in sending it to THE LANCET. So tremendous a fall without immediate death is a rarity of the greatest interest, to say nothing of the satisfaction of seeing the case thoroughly cured in so short a time and with the most simple means a surgeon can command.

In the afternoon of 1st June last, an English boy in his eighth year, accompanied by an elder brother, a sister, and an Arab servant, were playing on the terrace of a third-storey house (one of the highest in Alexandria), and not being able to fly a kite they had with them, clambered up on the roof of a wash-house. The boy wishing to cross over a beam which connected the front with the back part of the building, slipped and fell from the top to the basement on a granite pavement, a height of seventy-one feet three inches (carefully measured). I was immediately summoned, and on reaching the house a few minutes later was astonished at finding him still alive and conscious.

On examination I found, first, that both bones of the leg were smashed in the middle, so that the limb hung from the bed on which the boy was placed like a loose piece of the body. There was a sinus the size of a shilling above the fractured bone, whence issued a slight hæmorrhage. The femur was broken very irregularly about three inches above the condyle, so that it caused a deformity of the thigh; unfortunately it was not indicated, and the hour being late, and Sunday evening, it was impossible to obtain the assistance of another doctor, consequently the necessary bandages, &c., were not sent for. However, I made from the bedclothes sufficient bandages, and cut out of a piece of wood something like a Liston splint. This was done to get the fractured parts in as good a position as possible, leaving it to the following morning, if considered necessary, to make a more efficient bandage with the assistance of another surgeon. I nevertheless paid great attention to bringing the fractures to their proper bearings, but naturally I found much difficulty, unaided, in extending and dressing. I applied the splint to the outer part of the limb and bound it from the toes to the abdomen, leaving a fenestra on the sinus in the middle of the leg for the purpose of applying antiseptics. I washed it with a solution of carbolic acid, 5 to 100, and dressed it with gauze, &c. Ordered eight grains of calomel to be given at once, and an ice-bag to be applied constantly to the head.

June 2nd.—The boy had passed a restless night with convulsions. On a consultation with Drs. Mackie and Dove, of the Deaconesses' Hospital, it was decided to leave the setting as it was, to darken the room, and enjoin absolute rest. Bromide of potassium and ergotin to be given at intervals. Temperature, 39° C.; pulse, 160. Evening: temperature, 38·07° C.; pulse, 150.

4th.—Passed a restless night with delirium and convulsion. Formation of thrombus in the sinus; no pus. Elevated limb in a cradle, extending it at same time. Temperature, 37·05° C.; pulse, 130.

5th.—Better; without fever. Wound looks very well. No pus. Patient good-tempered.

6th.—Much better. No fever.

From the 6th to the 11th the patient progressed in health, and the wound granulated. On the 8th and 9th there was a little fever (38° C.) On the left temple, where there had been a contusion, a hæmatoma was formed, which I opened. On the 13th diarrhœa came on, which lasted for three days, and then passed off after the exhibition of bismuth. The general condition of the child was now satisfactory. He had no pains in the limb. The wound had healed; but there not being in the house all the commodities necessary for the requirements of such a case in absolute rest, a good deal of urine saturated the dressing, which became very offensive. I therefore determined to change the dressing. This state of things was indicated before the bones were united, and now that the time had arrived to bring them into a good position, and having obtained the valuable aid of Dr. Zancarol, of the Greek Hospital (Dr. Mackie having previously left for England), we took off the dressing, and applied a plaster-of-Paris bandage. This operation was carried out with great care, due respect being paid to the short lapse of time since the accident.

From this date I ordered a generous diet, and after thirty-three days removed the plaster bandage.

On examining the parts I found the fractures united, and with the exception of a slight curvature in the leg it was as sound as in its normal condition. In measuring, however, the length of both limbs, the injured one was found to be about half an inch shorter than the other.

On the 24th July the boy could hobble about with a crutch with slight assistance. Ordered an orthopædic apparatus for support of the limb.

On the 15th November the boy was racing across the playground of his school with six other boys of about the same age, and came in third.

Alexandria, Egypt.

AMYLOID DEGENERATION.

BY GEORGE BUDD, JUN.

(Concluded from p. 325.)

EXPERIMENT 6.—Having dissolved a quantity of lardacein in a strong solution of ammonia, I subjected the resulting liquid to gradual evaporation at a low heat. At the end of a day the fluid had become reduced to a fraction of its former bulk, and a thin scum separated upon its surface, consisting of precipitated lardacein. I placed a portion of this scum upon a slide and treated it with iodine, whereupon it immediately exhibited the mahogany red reaction—a result seemingly sufficient in itself to disprove Dr. Dickinson's doctrine of acidity, seeing that the reaction persists after such a prolonged treatment with strong ammonia.

Reviewing the results of these experiments, it will I think be concluded that Dr. Dickinson's theory has been founded upon a misinterpretation of a series of simple chemical combinations; for the iodine reaction is not, as he thought, due to any acidity of the waxy substance. (Experiments 1, 2, 3, 6.)

But to revert to another matter. I have said that the analyses hitherto made do not denote the composition of the simple infiltration, but rather that of the infiltration plus the cells affected. To this sum I must now add a variable quantity of unaffected cells also. Before attempting analysis efforts are made to remove unimplicated structures. The waxy organ is cut into small pieces, and these are subjected to digestion. Each piece consists of a congeries of countless cells, some waxy, others not. The unaffected cells upon the surface may be dissolved away, but those beneath will be protected from digestive action by the lardaceous cells around them, and will play a not unimportant part in the composition of the mixture when analysed.

The formula then which has been hitherto supposed to represent the composition of the infiltration is an erroneous one, and in the absence of better evidence pertaining to its elementary constitution we must examine the substance from another aspect. The brown iodine reaction exhibited by lardacein points to some possible relationship to members of the starch group. Now there is a starchy substance (dystropodextrin) normally present in the blood which agrees with the infiltration in its most essential characteristic—viz., its total disregard for all fermentative influence. That starchy substance is a nutrient compound, and is in virtue of its stable constitution just such a body as might under certain conditions prove difficult of assimilation. Moreover, waxy infiltration exhibits a peculiar predilection for that zone of the liver lobule which regulates the formation of this alimentary dextrin. Of course, it may be that these are merely coincidences, but if so they are remarkable ones.

The morbid history of the waxy cell is unknown, and all conjectures in this direction must be speculative. But it would seem to me in the highest degree improbable that the process is one of simply mechanical addition of deposit to the cell; for the latter is a living structure and vital processes are not usually of so simple a nature. It is at least possible that the infiltration may undergo assimilation in the centre of the cell where the vitality is great, and that what appears to be a cell distended and surrounded by deposit is in truth an engorged cell within a shell of unassimilated infiltration, the latter like a layer of protective paint yielding the external phenomena of the mass, but, since it is present in only comparatively small quantity, giving no conspicuous indication of its presence upon ultimate analysis. This, of course, is speculation; all I wish to do is to call attention to the fact that not only does the reputed formula of the infiltration represent a mixture, but possibly a mixture in which the unaltered deposit may be present in only very small quantity indeed.

I had intended, in conclusion, to give a brief summary, but I find that I am unable to do so without unavoidably repeating many sentences and expressions used in the course of this paper, and I do not wish to encumber the communication with tedious reiterations. I would, however, again call attention to Experiments 1, 2, 3, and 6, as I believe they disprove in a decisive manner Dr. Dickinson's theory of acidity.

Edinburgh.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quam plurimas et morborum et dissectionum historias, tum aliorum, tum propria collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

GUY'S HOSPITAL.

SURGICAL CASES ILLUSTRATING WOUND TREATMENT AND REPAIR.

(Under the care of Mr. BRYANT.)

THE following concludes this series of interesting cases:—

Rupture of Gastrocnemius; Hæmorrhage into Muscle; Recovery after Incision. (From notes taken by Mr. L. W. Stephens.) — John M——, aged twenty-eight, was admitted into Job ward on Nov. 10th, 1879. Seven weeks before admission, while carrying some deals, he slipped, and, to save himself from falling under them, threw them from him, and felt that he strained the calf of his leg in so doing. He continued to work, feeling occasionally pain until Nov. 4th.

On admission he seemed a strong, healthy man, and complained of pain in his calf, which was swollen, tense, and hot. There was no œdema superficially. The internal saphena vein was full, and somewhat distorted. The right calf measured fifteen inches and a half, against fourteen inches for the left.

On Nov. 13th fluctuation was detected, and an incision about one inch long was made over the inner belly of the gastrocnemius muscle four inches below the head of the tibia. About an ounce of serum escaped, and a large blood-clot was detached by the finger, of the size of a hen's egg. The wound was washed with iodine-water, and terebine was applied, with a pad and bandage. No suppuration followed, and the temperature did not rise above 98·6°. The man was discharged cured on Dec. 2nd. The blood had been extravasated into the body of the gastrocnemius muscle.

Genu Valgum; Division of Femur; Recovery. (From notes taken by Mr. Duckworth.) — Charles M——, aged four, was admitted into Lydia ward on May 15th, 1879. The child was a fine, healthy-looking little fellow, but was knock-kneed. While in a truck he fell out upon his forehead, and was brought to the hospital with an oblique incised wound just above and at the middle of the left eyebrow.

The wound was cleaned and strapping applied, and on May 31st it was completely scabbed over.

On June 3rd operation for genu valgum was performed under chloroform. An incision about an inch and a half above the knee was made on the inner side of the right thigh with a long scalpel, vertical in direction, and three-quarters of an inch in length. A small saw was introduced into the wound before the withdrawal of the knife. The saw was turned so as to be at right angles to the femur, which was then sawn about three-quarters through, and the bone snapped. There was scarcely any bleeding, and no vessels were twisted. Terebine-oil dressings were applied, and a splint placed on each side of the limb, which was put straight by pads of lint.

On the 23rd the wound was completely healed.

On July 14th the splint was removed. The bone had united and the leg was straight, but the patient could not flex the knee more than 30° without pain. On the 26th a felt splint was applied. The boy could walk very fairly. The left foot was everted in walking.

The temperature never rose above 98·5° F.

Ovarian Tumour; Ovariotomy; Recovery. (From notes taken by Mr. Duckworth).—Martha B——, aged fifty-one, was admitted into Lydia ward on May 28th, 1879. She was a healthy married woman and mother of seven children, all alive and healthy, the youngest ten years old. About a year before she first noticed a swelling in her abdomen, and felt on her right side a hard movable lump about the size of a teacup. The lump was slightly painful on pressure. When she laid upon her left side she felt it fall to the left. The lump gradually increased in size until two months ago, when it rapidly grew larger.

On admission the abdomen measured just below the umbilicus forty-one inches, and two or three inches lower down about forty-four. Across the middle could be felt a very large, irregular, hard mass, very movable and painful on pressure on the right side, presenting across the centre a vertical depression in a line with the umbilicus. No fluctuation was discernible. There was resonance in the flanks, dulness in front. A tympanitic note was audible over the epigastrium. No fluid thrill could be felt. The skin presented a pitted and longitudinally wrinkled appearance from over-distension in pregnancy. The urine was dark-yellow, thick, and clouded with mucus, with a good deal of phosphatic deposit, and no albumen.

On June 9th the patient was examined by Dr. Galabin. The uterus was found in the normal position. A sound passed three inches, and the uterus was freely movable by its means. Tumour just reached in front of cervix, and did not descend into the pelvis, and did not appear to be closely connected with the uterus. It was thought the tumour was a polycystic ovarian, but possibly a pedunculated fibro-cystic tumour.

On June 11th ovariotomy was done under chloroform. A manifest thrill could be made out from side to side. An incision was made along the linea alba five inches long, through the skin and fat. One vessel was twisted and the other tissues were divided on a Key's director, and the cyst exposed. The cyst bulged through the incision and was tapped with a trocar and cannula, and about six pints six ounces of a dark-coloured, porter-like fluid escaped. The tumour was monocystic and thick-walled, and connected with the right ovary. The pedicle was clamped and the tumour removed without the loss of any blood. A silk ligature was fastened behind the clamp, and the clamp left on. The intestines which appeared during the operation were gently pushed back and omentum replaced over them. The wound was closed with ten silk sutures, and pads of dry lint and broad straps of strapping placed around the abdomen, and an ice-bag placed over all. A morphia suppository per rectum. Operation at 2.45; at 3.15 temperature 98·5°. At 5 another suppository; at 10.30 temperature 98·2°.

12th.—9 A.M., temperature 99·4°; 11 P.M., temperature 100·4°.

13th.—11 A.M., temperature 99·2°; 12 P.M., temperature 100·4°.

14th.—11 P.M., temperature 100·2°.

15th.—10.45 P.M., temperature 100·4°.

16th.—10.30 A.M., temperature 98·4°; 9.40 P.M., temperature 100·2°.

17th.—11 A.M., temperature 99°; 10 P.M., temperature 98·5°.

18th.—11 A.M., temperature 98·8°.

19th.—10 A.M., temperature 98·5°; 10.30 P.M., temperature 99°.

20th.—11 A.M., temperature 98·4°; 3 P.M., dressings removed for first time since the operation, and all the sutures removed. The incision is healing by primary union, and looks well. 9 P.M., temperature normal.

23rd.—Temperature 99·1°; evening, 99·6°.

24th.—Temperature 98·5°; evening temperature 100°.

25th.—Morning temperature 98·5°; evening temperature 99·2°.

26th.—Morning temperature 98·5°; evening temperature 98·6°.

The patient has progressed without any bad symptoms, and was discharged on July 16th, "well;" but there is no report after June 26th.

Puncture, penetrating; Wound of Abdomen; Protrusion of Omentum; Recovery. (From notes taken by Mr. Griffiths.)—H. H——, aged twenty-five, was admitted into Accident Ward on Dec. 7th, 1879. The patient was stabbed in the abdomen, and was not aware of the injury until about five minutes afterwards, when he felt a pricking pain, and upon examining himself, found that he was bleeding freely. Soon after the injury he vomited, and vomiting occurred after.

On admission he had an incised transverse wound of the abdomen, about one and a half inches long, and about two and a half inches above the centre of Poupart's ligament, from it a piece of omentum was protruding, and an escape of peritoneal fluid. The omentum was returned after having been well washed with carbolic lotion, and the wound closed with wire sutures, the peritoneum not being included. He was ordered milk diet and one grain of opium twice a day. Eight days later the sutures were removed, the wound having nearly healed. On the 17th he left the hospital, against advice, but apparently well, the reparative process having gone on satisfactorily.

The temperature never rose above normal, indeed on several days it was below the standard.

UNIVERSITY COLLEGE HOSPITAL.

THREE CASES OF TUMOUR OF THE ANTRUM OF HIGHMORE.

(Under the care of Mr. CHRISTOPHER HEATH.)

THE following is the third and last case of the series begun last week:—

CASE 3. *Epithelioma of the Antrum; Pneumonia; Death.*—R. M——, aged fifty-nine, a shoemaker, was admitted on May 30th, 1879. At the beginning of the previous month he had noticed that his right nostril was obstructed; a week or two afterwards the lower lid of the right eye became inflamed, and a swelling which commenced here rapidly extended over the right cheek. About this time a painful swelling of the hard palate appeared, and the patient consulted a dentist, who extracted a tooth. Shortly afterwards he applied at the hospital. His brother was stated to have died of cancer of the kidney. The other members of his family were, so far as he knew, healthy.

He was a pale but well-nourished and well-preserved man for his age, though he had, he stated, lost flesh latterly. Temperature varied from 99° to 100° F. He complained of a feeling of stuffiness in his jaw, but of no pain.

The skin of the right side of the face was reddened, œdematous, and tender, and the cheek was projected outwards by the tumour beneath it. The right eyelids were closed and œdematous, but could be opened slightly, displaying chemosis of the conjunctiva, a clear cornea, and a somewhat sluggish iris. The right nostril was obstructed, and there was a purulent discharge from it; the nasal duct on the right side also appeared to be obstructed, giving rise to overflow of tears. To the touch the tumour gave the idea of a soft solid rather than of fluid. Most of the right half of the hard palate was absorbed, a soft elastic swelling occupying the roof of the mouth, the mucous membrane of the latter being congested and swollen. The teeth of the upper jaw were carious or absent, but the alveolar process was neither displaced nor softened. Owing to the resistance of the patient, an examination of the posterior nares could not be made. The lymphatic glands in the posterior triangle of the neck were enlarged, but free from tenderness. The mouth could not be opened to its full extent, and speech was slightly affected. The tongue was broad, pale, and marked by the teeth.

On the 31st a fine trocar with cannula was inserted into the swelling on the roof of the mouth, and a few drops of stinking pus evacuated. The opening made by the trocar was subsequently enlarged, and a drainage-tube was passed into the antrum.

It soon became evident that the growth was malignant, and as the man's condition became worse daily, removal of the upper jaw offered the only chance of prolonging his life. This was accordingly done on June 4th. The floor of the orbit was taken away, but it was impracticable to wholly extirpate the growth in this direction, as the orbital structures were infiltrated. The somewhat free bleeding was restrained by the actual cautery, and the cavity of the wound was stuffed with strips of lint soaked in a strong solution of chloride of zinc.

The growth appeared to have commenced in the antrum, the walls of the latter being partially absorbed, the anterior almost wholly, thereby allowing invasion of the orbit, the mouth, and the pharynx. Several pieces of dead bone, surrounded by offensive pus and débris of broken-down growth, were found in its cavity, thus accounting for the inflammatory condition of the superjacent skin, and the purulent discharge from the mouth and nostrils. In other parts the growth was of a yellowish colour, translucent, gelatinous, and vascular. Several ordinary soft gelatinous polypi were extracted from the right nostril during the operation.

In sections taken from the margin of the growth near the gum, the microscope showed cylinders of epithelium cells, irregular in form and sinuous in outline, sometimes anastomosing, set in a stroma made up of fibrous tissue and spindle-shaped cells. Epithelium "nests" were observed here and there, but these were few, small, and ill-developed.

The papillæ of the mucous membrane covering the gum, where the latter was infiltrated, were hypertrophied. The histological characters of the growth appeared to correspond with those of the "épithéliôme tubulé" of Cornil and Ranvier.

On June 13th pneumonia was present at the base of the right lung, and on the following day friction sounds were audible over the affected area. The edges of the skin wound had united, except at the inner angle of the orbit.

On the 16th there were dulness, extremely weak breath sounds, diminished local fremitus, and resonance to the angle of the right scapula, with bronchial respiration above. The lymphatic glands, which had become larger and very tender in the right posterior triangle, had diminished in size after treatment with belladonna and poulticing.

On the 18th, the physical signs of pneumonia at the left base became evident, and the general condition of the patient worse, though he wanted to "be up and about." The fetor from the cavity of the wound was now almost intolerable, and one or two sloughs had separated.

From this time the chest symptoms increased in severity, and he died on June 26th.

Necropsy (by Mr. BARKER) *twenty-five hours after death.*—Rigor mortis well marked. Body well nourished. The serum in the pericardium was normal in amount and characters. The heart was somewhat enlarged, and rigor mortis was well marked; a good deal of fat was noticed chiefly on the anterior surface. The superficial veins were somewhat loaded. The right auricle contained firm post-mortem clot. The right ventricle was also engorged with clot, part of this having evidently formed during several hours before death. The left ventricle was firmly contracted, and contained a small quantity of tough coagulum. The cardiac valves were healthy. The left lung was extremely emphysematous anteriorly, and posteriorly it was covered with recent lymph, hardly adherent. There were six ounces of serum in the left pleural cavity. The inferior lobe was considerably congested, and some small portions were collapsed. Section showed general congestion and grey hepatisation and softening at numerous points, but the lung was not gangrenous. The bronchi were intensely congested in patches down to the smaller ramifications, and full of dirty brown sero-mucous fluid. The right lung was adherent to a large extent to the ribs, particularly over the lower lobe, and by more recent lymph above. A large abscess opened on removing lower lobe from chest wall. This abscess, occupying a large portion of lower border of upper lobe, upper border of lower lobe, and extending deeply into the substance of the lung, was a ragged, ill-defined space, full of black, very fetid broken-down lung tissue, and was surrounded by blackened, sloughing, very soft lung tissue. The bronchi, as in the left lung, were intensely congested, increasingly so towards the finer ramifications, and full of foul sero-pus. The bronchial glands were much enlarged at root of both lungs. The tongue was covered with a thick covering of foul material, apparently dropping down from the roof of the mouth. There were enlarged papillæ at the base, the size of millet seeds, raised, pedunculated, and deeply pigmented. The œsophagus was normal. The mucous membrane of the larynx and trachea was inflamed throughout. There was a quantity of grey mucus in the ventricles of the larynx. The anterior surface of hard and soft palate was covered with foul, tenacious pus. The operation-cavity extended back beyond orbit to the pterygoid fossa upwards to sphenoid bone. The septum of the nose was carious, and giving way. The orbit and eyeball had not been particularly injured by the operation. The liver was apparently normal. There was no post-mortem staining in the great vessels, nor extravasation in the mucous membranes of the intestines.

LEEDS GENERAL INFIRMARY.

CASES OF NERVOUS DISEASE, PRESENTING OPHTHALMOSCOPIC PHENOMENA.

FOR the notes of this interesting series, concluded from page 447, we are indebted to Dr. E. H. Jacob, late resident physician.

CASE 10. *Multiple Paralysis; Anæsthesia; Optic Neuritis.*—H. J——, aged nineteen, was admitted on April 30th, 1878, under the care of Dr. Heaton. She was married, and had had two children. Her last confinement, four months ago, being easy and natural.

Six weeks ago she found one morning she had lost sensation in the left half of her upper lip. The next day this had extended to the whole cheek. The day after she had some loss of sight in the left eye, and the numbness extended to the forehead and side of the neck. With this her right leg began to be numb, though there was not complete loss of sensation. In a few days the sensation returned to the anæsthetic parts, but there still remained some loss of sight. About a week after this the left leg began to lose sensation, and in four days she had lost all power over it as well; this was followed by a similar affection of the right leg, ending in complete paraplegia. At the beginning of the attack she lost power over her bladder for a week; this returned naturally.

The patient was a bright-looking intelligent girl, but rather pale. She answered questions clearly. There was complete loss of power over both legs, and sensation was so far impaired that she could not feel a light touch anywhere below the umbilicus. Reflex action was increased. There was nothing abnormal in the back. No tenderness or increase of sensibility to heat or cold. She said her legs sometimes burned and jumped. There was complete loss of sight of outer half of the field of vision on the left side. The pupil was dilated and insensible to light; the optic disc was a large, woolly-looking mass, with dilated tortuous vessels partially hidden by effusion. The disc in the right eye was rather white, but apparently healthy. She was ordered brisk, cutaneous faradisation with a metallic brush. The muscles acted to a moderately strong current. A tonic iron mixture was also prescribed.

On May 6th, she could move her toes slightly, and feel a very light touch on both legs. On the 8th, she could move her feet a little, sensibility was perfect. The field o vision was perfect, and there was less effusion on the disc. On the 13th, there was still effusion over the whole fundus, especially the apparent inner half. The disc was woolly but fairly defined. There was a slightly more marked patch of effusion straight above the disc. On the 17th, the disc was much clearer, but there were some streaks of effusion along the vessels. She could walk with assistance, and read large print with the left eye. On June 3rd, she could walk slowly without assistance, the left disc was clear but the vessels were large and tortuous. She could read moderate-sized print, but said the letters looked misty. She was discharged a few days later.

Remarks.—The severe, but transient and variable, nature of the paralysis and anæsthesia in this case removes it from the category of organic disease. Ophthalmoscopic signs, however, though functional amblyopia is common, appear to be very rare in hysterical cases. No case of the kind is mentioned by Dr. Gowers in his "Atlas of Medical Ophthalmoscopy," although he quotes Landolt as having seen dilatation of vessels and serous transudation into the retina, in connexion with extreme amblyopia. Unilateral optic neuritis is a phenomenon of rare occurrence, though two cases have been reported by Dr. Hughlings Jackson, in which the affection was on the opposite side to the cerebral tumour.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Granular Contracted Kidney.—Dilatation of Fallopian Tubes.—Fatty Degeneration of Muscles in Infantile Paralysis and Talipes.—New Method of Mounting.—Cancer of Breast.—Melanosis of Finger.—Epithelioma of Penis.—Aneurism of Mitral Valve.—Disease of Pulmonary Valves.—Ulcer of Stomach.—Drawings of Cancer.

THE ordinary meeting of the Pathological Society was held on Tuesday, the 16th inst., the President in the chair. There was a large attendance of members. A number of specimens illustrating the changes met with in granular contracted kidney were exhibited by Drs. Saundby and Greenfield, and the discussion upon them was the main incident of the evening. At the close of the meeting the President announced that Dr. Hilton Fagge had consented to introduce the discussion on Rickets, which was arranged to commence at the second meeting of the Society in November.

Dr. SAUNDBY, before describing his specimens of Chronic Granular Kidney, which were under the microscopes in the adjoining room, referred to the views of Johnson, Traube, and Gull and Sutton, each of which was partly true but also insufficient. He classed the changes into those in the tubes, in the interstitial tissue, and in the vessels. He claimed that his specimens showed the epithelium in the tubes to be actively proliferating, and filling the tubes with free nuclei; in places these nuclei could be seen undergoing transformation into spindle cells, while where the change was more advanced, wide tracts of hyaline connective tissue containing a few spindle and stellate cells were seen. In many places part of a straight tube was seen filled with a delicate granulation tissue which, becoming gelatinous, formed a tiny mucous cyst. It might be thought that this conversion of epithelium into connective tissue was a breach of Remak's embryological law, but as the Wolffian ducts, tubes, and glomeruli are believed to be formed from the mesoblast, we must regard the renal epithelium as genetically connected with the connective tissues. Dr. Hamilton has recently described a similar process in cirrhosis of the liver, Dr. Creighton in the mamma, and it can be demonstrated in the lungs also. Secondly, the capsule and intertubular tissue is widened by swelling, by increased intercellular secretion and growth of its formative elements; but there is an entire absence of any appearance of general nuclear proliferation. The Malpighian capsules are also thickened, the glomeruli atrophy, and the epithelium lining the capsules and covering the vessels proliferates and forms a little mass of granulation tissue which in most cases becomes gelatinous and forms a mucous cyst. Thirdly, the vessels with differentiated coats are greatly dilated, the endothelium proliferates and narrows the lumen, the elastic laminæ are swollen and separated, the muscular coat is swollen and hypertrophied, and the adventitia blends with the hyaline connective tissue around it. The vessels with homogeneous walls are seen to be formed of concentric layers of spindle cells identical with muscular fibres, the walls being of great thickness. These vascular changes are merely those met with in the vessels of inflamed tissues generally; but some amount of the thickening of the vessel-walls probably occurs anterior to the commencement of inflammation. The commencement of the lesion in the parenchyma and the filling of the tubes with nuclei have been often observed and taught. To these views he would add the statement that the nuclei of the proliferated epithelium become converted into spindle cells and connective tissue. A similar fact has been noted elsewhere by Drs. Hamilton and Creighton. The mode of cyst-formation he has described is also, he believes, new in this situation. His views on the much debated question of the vascular changes are those generally held on the Continent.—Dr. GREENFIELD had promised the secretary to exhibit some specimens bearing upon this subject, but had felt a difficulty in doing so, as he was in ignorance of the ground to be traversed by Dr. Saundby. He had hoped that Dr. Saundby would have discussed the pathology as well as the histology of the affection, would have dealt with its etiology, and shown how it interferes with the renal function; but in all this he had been disappointed. There was much doubt about the whole subject; all of the three views mentioned by Dr. Saundby contained parts of the truth, and with improved methods of research it was reasonable to hope for more definite and accurate knowledge. The specimens he exhibited were intended to show what he believed to be the initial and important changes in the kidney; they were the antithesis to Dr. Saundby's. He had been quite unable to trace the development of connective tissue from the epithelium, and having examined a large number of specimens he was of opinion that this change must occur in only a small minority of cases, if at all. Dr. Saundby had not adopted Charcot's view, which was, that interstitial change was often subsequent to epithelial change. He had pointed out that after ligature of the ureter in a guinea-pig great interstitial proliferation was found, while the glomeruli and arteries were free from change, in this respect differing markedly from granular kidney. He suggested that this was subsequent to epithelial proliferation. His own specimens illustrated a condition common to many forms of renal disease, constituting a primary change in all cases of chronic disease, even the lardaceous form. The change in question is a proliferation of the epithelium lining the glomeruli which leads to a formation of connective tissue, compressing and so causing atrophy of the contained capillaries. There is also proliferation of the epithelium covering the glomerulus, and there may be a fusion of this tissue with the lining of the capsule in one fibrous mass, which he thought was the mucous degeneration of Dr. Saundby. There is in addition a thickening of the fibrous capsule of the glomerulus which spreads out around the convoluted tubes. This he believed to be the initial and most important change in chronic renal diseases. If the kineys of people suffering from a general fibroid disease in whom there is morbid renal change are examined, this change in the glomeruli is found in scattered patches. The glomerulus is the apex or extremity of a renal tube, and, with it, may be looked upon as a renal element. It is well known that the greater part of the water of the urine is secreted in the glomerulus; if this then is interfered with the tube below is deprived of its usual stimulus and the epithelium lining it atrophies and dies. And further, the arterial flow being obstructed through the glomerulus the circulation in the vessels beyond—those round the convoluted and straight tubes—is also impaired, causing lessened excretion from them and their ultimate atrophy. This glomerular change is often seen to be limited to certain conical patches of cortex, and to regions surrounding the interlobular arteries. In pure granular contracted kidney the change is essentially atrophic: the tubes waste, the epithelium degenerates and remains as only a few cells. He had found this change in nearly all examples of chronic renal disease. In the form met with after scarlatina it was very constant and might be the only change. One of his specimens was taken from a boy who died from acute dropsy on the forty-ninth day after the onset of scarlatina, and the change was almost limited to the glomeruli. In the large white kidney the change is essentially interstitial, and in the glomeruli all the stages of the change are seen. It is also met with in the last stage of lardaceous disease when from capillary obstruction there is no longer a flow of blood round the convoluted tubes leading to loss of function and atrophy. In certain cases the granular disease is connected with primary change of the arterioles, a thickening of all the coats. The later changes met with in the vessels are those of atheroma, or endarteritis deformans, a thickening of the inner and outer coats. He did not think Dr. Saundby had brought forward a clue to the pathology of granular contracted kidney. He had drawn attention to these glomerular changes because they are not mentioned in the text-books, or hardly at all; they are not the primary change in the large white kidney, and in acute renal disease there is inflammation with exudation and epithelial degeneration. In scarlatinal nephritis he had traced the connexion between the changes in the glomeruli and tubes. In the kidneys of a boy who died from renal disease three months after scarlatina, and which were at first sight quite healthy, he had found at certain parts remarkable proliferation of the cells covering the glomeruli, while in the convoluted tubes prolonged from them the epithelium had lost its granular character, and had become flattened below.—Dr. MAHOMED thought Dr. Saundby had added considerably to our knowledge of this subject, his specimens showed the origin of connective tissue from the epithelium. But he was sure that all granular kidneys had not this origin, and it was a great mistake to speak of this disease as one—there were three distinct forms of it. The first was that in which there is granular kidney without any clinical evidence of it, a part of a general fibroid disease—Sir W. Gull's arterio-capillary fibrosis—where there is a distinct intertubular exudation followed by dense fibrous change. The second was the mottled yellowish granular kidney with tubules full of epithelium undergoing degeneration—a true granular kidney with symptoms during life. These changes largely result from a fibroid degeneration of the epithelium. The form of granular kidney met with in young people shows well marked epithelial change. The third form is the lardaceous granular kidney. Many large white kidneys begin as lardaceous disease, followed by changes in the arteries, and a true nephritis producing the granular form of the disease.—Dr. N. MOORE could not clearly distinguish between Dr. Mahomed's first two forms of the granular disease. He was also anxious to learn whether Dr. Saundby was able to point out the difference between the two classes of granular kidney, which were clinically so distinct; in the one often following scarlatina there were the symptoms usually associated with a large swollen kidney, and death ensued in two or three years, and the kidneys were found to be small, pale, with a thickened capsule; in the other there was a general fibroid change throughout the body. The two kidneys when

granular may be indistinguishable, but surely they begin differently.—Dr. MAHOMED explained that arterio-capillary fibrosis is met with in any form of true renal disease; it may occur alone, or in conjunction with kidney disease proper.—Mr. EVE thought that serious objection must be taken to Dr. Saundby's view of the development of connective tissue from the nuclei of epithelial cells; it was entirely contrary to our present knowledge; it was common to see collections of leucocytes round epithelial changes, especially in the breast and tongue.—Dr. HOGGAN thought Dr. Saundby's specimens did not support his statements. What were called small cysts he regarded as tubes bare of epithelium seen in section, while the spindle-shaped cells were the nuclei of the shrivelled and atrophying tubes seen in the same way.—Dr. SAUNDBY reminded Mr. Eve that the kidney was developed from the mesoblast, and that therefore its epithelium had genetic relations with connective tissue. He thought that granular kidneys were subject to intercurrent attacks of inflammation which caused interstitial fatty degeneration, which made the main difference between the different varieties of the disease. He made no pretence whatever to throw light on the etiology of the disease, which he considered quite a distinct subject, and too large to be combined with that he had brought forward, which was simply the histology of the affection. One objection to Dr. Greenfield's view was the fact that the water-secreting function was not early interfered with, as would be the case if the glomeruli were primarily diseased.—Dr. GREENFIELD replied that the increased flow of water was due to the greater lateral pressure in the healthy unaffected glomeruli necessarily resulting from the obstruction in the diseased; while the atrophy of the excreting tubules explains the diminution of the urinary solids. The first form of chronic granular change is probably primarily vascular; the other arises from renal change.

Dr. MULES (Manchester) showed some specimens mounted by a new method introduced by Mr. Priestley Smith, the minor details of which he had slightly altered. They were specimens of various diseases of the eyeball, mounted in glycerine jelly. They were prepared by being hardened in Müller's fluid and then decolorised by chloral, or hardened in alcohol; others were mounted fresh from carbolic glycerine. The specimens shown had been mounted two years, and their colour and appearance were perfectly preserved. In answer to Mr. Doran, Dr. Mules stated that by this method the œdematous appearance of specimens could be preserved.

Mr. NUNN showed drawings and sections of three tumours. The first was a Cancer of the Breast, which was removed from a lady between fifty and sixty years of age, from whom Mr. Curling had removed a tumour seven years before. The recurrence was small, and removed early. Dr. Goodhart had examined the first tumour, and stated that it was a peculiar form of scirrhus: his specimen showed that the recurrent growth retained these peculiar characters, for it consisted of very minute cysts lined by columnar epithelium, and containing a quantity of obsolete blood in the centre. The second was a specimen of Melanosis of the Finger, also from a lady between fifty and sixty years old. For more than a year she had noticed what looked like an ecchymosis on the finger, which was supposed to be due to the pressure of a ring worn on the next finger during a squeeze of the hand. During the last six months it took on a more malignant aspect, and declared itself as melanosis. The melanotic cells are diluted, as it were, with a large number of leucocytes, as if the later growth had been a development of these colourless cells between the older pigmented ones. The third was an Epithelioma of the Penis from a gentleman aged seventy, showing a great development of epithelium.—Mr. GODLEE exhibited before the Society some years ago a tumour closely resembling the cancer of the breast; it had recurred locally, after removal by caustics, and then again in the axilla; it was composed of similar cysts containing blood. Mr. Nunn's case was the only other example he knew of.—Dr. THIN said that the section of the breast tumour under the microscope satisfied him that the tumour was one of the class he had described in a paper he had read before the Medico-Chirurgical Society as duct-cancers. These duct-cancers were essentially the same in structure as the tumours usually called adenomas. In the commoner form, that usually recognised as adenoma, a cluster of small epithelial tubes was the usual appearance; but in some cases, and Mr. Nunn's case seemed to him to be one of them, a further development took place. Instead of the tubes a large mass of cells was formed. These cells broke down in the centre of the mass, leaving a cavity lined with epithelium, and from the walls of the cavity secondary growths sometimes sprouted into the free space. He had been able to examine sections of tumours prepared in various London hospitals and in Edinburgh, and had found transition forms from the commoner adenoma to the rarer forms the growth assumed, of which the present was an example. The cancer of the mamma following disease of the surface of the nipple was in all the instances he had examined of this form, and as in these cases the disease was rapid and fatal, it seemed that the disease, when it took its origin from the epithelium of the larger ducts near the surface of the nipple, was much more severe than when it developed deep in the breast from the smaller ducts. The clinical difference between this form and scirrhous cancer was, he thought, illustrated by the history of Mr. Nunn's case.—Dr. S. MACKENZIE asked how long the finger had been removed, whether there was any recurrence, and whether the blood had been examined at any time. He thought an examination of the blood would be of great service in showing the existence of dissemination of the pigment.—Mr. NUNN replied that there was no secondary deposit and no recurrence; the blood had not been examined. He had some specimens of adenoma of the breast showing a structure just like the prostate gland. His specimen of cancer of the breast was referred to the Morbid Growths Committee.

Dr. N. MOORE showed a specimen of Disease of the Valves of the Pulmonary Artery, which was found in a woman aged thirty-six, who died a week after parturition from right pleuro-pneumonia. The valves were red and swollen, and affected with old and probably also recent endocarditis. He could not find any evidence of pulmonary embolism. Dr. N. Moore also showed a specimen of Ulcer of the Stomach. The patient, a woman aged thirty-four, died from intestinal obstruction due to a band constricting a loop of ileum. For three to four days before death there was uncontrollable vomiting, and after death a small ulcer was found in the stomach, close to the pylorus, and a similar one in the jejunum. He thought the gastric ulcer was the result of the vomiting.

During the evening the following card specimens were exhibited:—

1. Dilatation of Fallopian Tubes, by Mr. Alban Doran.
2. Dissection of Calf of Leg in a case of Infantile Paralysis, showing Fatty Degeneration of Muscles and Nerves, by Mr. Alban Doran.
3. Dissection of Leg in Congenital Talipes Equino-varus, showing Fatty Degeneration of the Muscles, by Mr. Eve.
4. Drawings of Cancer, by Mr. Hulke.
5. Aneurism of Mitral Valve, by Dr. N. Moore.

The meeting then adjourned.

CLINICAL SOCIETY OF LONDON.

Spontaneous Gangrene of Fingers.—Congenital Cystic Hygroma.—Intrathoracic Sarcoma.

THE ordinary meeting of this Society was held on the 19th inst., Dr. E. H. Greenhow, F.R.S., President, in the chair. The subject of Cystic Hygroma, introduced by Mr. T. Smith, led to some interesting remarks; and the question of the differential diagnosis of pleural effusion and new growths was raised on a case of the latter contributed by Dr. de Havilland Hall.

A remarkable case of Cardio-Pulmonary Bruit was shown by Dr. TAYLOR.

Mr. T. SMITH read notes of a case of Spontaneous Gangrene of the Thumb and Fingers of the Right Hand. A fairly nourished girl, three years of age, was admitted into the Hospital for Sick Children, suffering from an abscess in the thigh. The abscess was treated antiseptically. For some time she had suffered from pains in the feet and legs, and her extremities were mostly bluish and cold. Whilst under treatment for the abscess the fingers of the right hand became the seat of an erythematous blush, and no pulse could be felt at the wrist; then blebs formed, and the fingers and thumbs became gangrenous, separating at the metacarpal joints. Mr. Smith expressed himself unable to account

for the gangrene. It seemed as if the habitual chilled state of the hands had gone beyond its usual limit, and so led to blood-stasis and gangrene; for in other respects the child's health was good, and there was no evidence of renal or cardiac disease, nor of embolism. The gangrene was limited to the hand.—Dr. SYMES THOMPSON said that five or six years ago he was consulted by a Russian general, who suffered so much from coldness and powerlessness in the feet that he could only walk for five or ten minutes at a time, and then had to sit down. Dr. Thompson could not find a sufficient cause for this; and physicians consulted in St. Petersburg, Vienna, Berlin, and Paris were equally at a loss to account for the condition. Since then the patient has been attacked with gangrene of both lower extremities, from the toes to the ankle. In reply to the President, Dr. Thompson added that the heart was healthy, there were no signs of atheroma, nor did the pulsation in the lower limbs appear diminished.—The PRESIDENT suggested that the condition in Mr. Smith's case was allied to chilblain.—Mr. CROFT asked whether the blood had been examined microscopically. In obscure cases of gangrene some light might be thrown by noting not only the relative proportion of the red and white corpuscles, but the quantity of fibrin in the blood. Gangrene might be due to deranged nerve-supply, to arterial degeneration (as probably in Dr. Thompson's case), or to altered composition of the blood, as apparently in Mr. Smith's case. To such blood condition alone could be explained the occurrence of "white leg" in young women during menstruation. The child was in ill health from its large abscess in the thigh, and that might have increased the tendency to clotting in the vessels, aided by the languid circulation. Were there any septicæmic symptoms?—Mr. GOULD asked whether there was any evidence of carbolic-acid poisoning when the gangrene came on. In a case of amputation at the hip-joint he brought before the Society last year thrombosis occurred, and he attributed it to carbolic-acid poisoning.—Mr. MACNAMARA said that in poisoning by carbolic acid the movements of the white corpuscles are arrested; and it was possible that clot-formation would be started by this action of carbolic acid upon the vitality of the corpuscles.—Mr. SMITH, in reply, said that carboluria did not occur until three weeks after the onset of the gangrene. He had observed carboluria, in many cases, of children under carbolic-acid treatment. His own view was that expressed by the President, that the case was an extreme form of "chilblain." However, the child had no chilblains elsewhere; she was well fed and cheerful, but flabby textured. There were no signs of septicæmia. The blood was not examined. The spleen was palpable, and there was slight rickets.

Mr. T. SMITH also read notes of Two Cases of Cystic Hygroma. In each the growth was of considerable size, extending from the neck into the axillary and subscapular regions—and both were cured by the same process. The first case was that of a female child about three years old, who came under care in September, 1878. The tumour reached from the elbow to the axilla, and across the thorax as far as the sternum. It grew slowly from birth till the age of one and a half years. Four weeks before admission a blow had been inflicted on the swelling; and when admitted it was acutely inflamed, non-fluctuating, and with a firm, shining surface. In three weeks the local inflammation had subsided, and the cysts had become retracted; so that when the child left the hospital five months later only a sort of fibrous thickening remained. The second case was a female child, aged two years and a half, admitted in August, 1878, with a large hygroma of the neck, extending back to the scapular region. It was composed of large cysts, which lodged in the neck and axilla, and were traversed by large veins. Setons were introduced, and on the third day the cyst had begun to be inflamed. Suppuration followed, and the child was very ill for many weeks, but was eventually discharged, after being in hospital for six months, with the tumour consolidated and very much diminished. Through the kindness of Dr. Barlow he was enabled to show a third case. This was a baby six weeks old, with large cysts below the chin on each side of the neck. Mr. Smith said that about five years ago he collected cases of this affection in a paper in St. Bartholomew's Hospital Reports, and he there remarked upon the capricious progress of such cases—how sometimes the growth would diminish in one direction and increase in another. The largest example was the case of a child at the Hospital for Sick Children, where the hygroma was larger than the child itself; it extended from the chin to the pubes, and down one arm. The child lived to eight or nine years, and died from pneumonia and inflammation of the hygroma. In the paper referred to he had advocated the use of setons for want of a better method of exciting inflammation, although it was attended with risk. He had never tried the iodo-glycerine solution, but should think it would be successful in cases of single cysts—cases, however, which it would be easier to cure by other methods. In all cases where he has tried to remove the cysts the wound has healed badly.—Mr. WARRINGTON HAWARD had no doubt that the use of setons was the simplest form of treatment, although attended with risk. Still a considerable number of cases do undergo spontaneous cure. He had lately seen two such cases. In one case the child fell down and struck the tumour; blood was effused, and as it underwent absorption the tumour contracted. The child being out of health, Mr. Haward had advised operation to be deferred, and then this happy accident occurred, and the growth eventually quite disappeared. In another case, of less extensive character, spontaneous cure took place without obvious injury. The child was four years of age, and it was noticed that, as one part of the tumour diminished, other cysts seemed to become rather more tense. He presumed that as in other serous cysts—e.g., hydrocele—inflammation alters the secreting surface; and, as in hydrocele, sometimes a little and sometimes much inflammation was necessary to start absorption. He, therefore, advised that children suffering from these congenital cysts should be observed for a time before having recourse to operation, for here, as in nævus, the larger the growth the more likely was it to get well spontaneously, because of its greater liability to injury.—Mr. GODLEE asked for information upon the pathology of these cysts. He had lately removed some small cysts from a child's arms, the lining membrane of which showed typical lymphatic epithelium. The tumour resembled a fatty growth before removal. The wound healed in three or four days.—Mr. PARKER had seen two or three of these cases. The first was one at Great Ormond-street Hospital, which, at Mr. Smith's suggestion, he treated by the use of setons, and the case did well for a time, but the hygroma refilled three or four months afterwards. Later the child contracted scarlet fever, and after that the hygroma disappeared. He remembered another case at the London Hospital, under the care of Mr. Maunder, who, in removing it, found it had deep connexions with the cervical vertebræ. The growth consisted of connective tissue, with loculi full of fluid. In a third case the cyst, which was a single one, dwindled away after slight inflammation had occurred. He asked whether it was not unusual to meet with them on both sides of the neck.—Mr. HOWARD MARSH said that before Mr. Smith's paper—one of the best essays in children's surgery—was written, but little was known about these cysts. Mr. Cæsar Hawkins, some years ago, had pointed out the great difficulty there was in their removal owing to their deep connexions, for in one case Mr. Hawkins found the growth passing between the œsophagus and the spine. But they were not limited to the neck. Mr. Holmes had a case below the ischium, and in removing it exposed three inches of the rectum. Mr. Marsh himself once saw a child, nine days old, with a cystic tumour of the cheek, preventing closure of the mouth, and sending out lobes which pushed the soft palate on one side. As the growth was enlarging towards the pharynx he made an incision over the tumour, and dissected it out from under the zygoma, taking away also one-half of the soft palate. The child recovered. Sometimes these cysts occurred on the trunk, sometimes on the arms. He agreed with Mr. Haward that in many cases they may be left alone, but in some the growth goes on enlarging, and it is imperative to interfere. The use of setons was dangerous, often attended by severe illness, sometimes with loss of life.—Mr. PARKER added that he had under his care an adult suffering from a similar cystic growth in the neck, which he had injected with Morton's fluid, the injection being followed by much pain in the arm.—Mr. SMITH, in reply, endorsed Mr. Haward's statement that the larger of these cysts were those most prone to get well spontaneously. Still, sometimes interference had to be had recourse to when there was danger from suffocation. Any kind of curative treatment, of course, involved risks. The disease does occur in other parts of the body—e.g., they had one case of cystic hygroma of the kidney at the Hospital for Sick Children. He had seen another case where a child's belly became so distended and round that it looked like a large gooseberry. The child was

so well that Mr. Smith postponed operating; and one day the child, after dinner, fell off a high chair and "burst himself." The swelling thenceforth disappeared. No doubt this was a case of this class. He could not say what was the precise pathology of these hygromas, to which Mr. Godlee's case seemed to belong. Cysts separated by tissue like that in the umbilical cord were their gross features. He did not think it very rare to occur on both sides of the neck. Mr. Cæsar Hawkins gives an instance where the disease underwent an apparent spontaneous cure, but at the end of fifteen or twenty years began to grow again.

Dr. DE HAVILLAND HALL read notes of a case of Intrathoracic Sarcoma. The patient, a clerk, aged nineteen, had enjoyed good health until nine weeks before, when he "caught cold" whilst playing cricket, suffered from shortness of breath, and a slight cough, but had no hæmoptysis, nor was there severe pain. In three weeks' time he gave up work, and was treated by a medical man for pleurisy. He was admitted into Westminster Hospital on Dec. 6th, 1879. He lay on the left side; there was absolute dulness on this side in front from the second rib downwards, and behind from the spine of the scapula. Vocal fremitus was diminished, but not quite abolished. The heart's impulse was seen one inch within and below the right nipple. Next day he had dyspnœa, and the dulness extended to the clavicle and across the sternum above. An exploratory puncture with the aspirator resulted only in the passage of some cheesy matter. On Dec. 8th he was again tapped, but only blood obtained. Mr. Gould then made an incision, and found caseous material as far as he could reach; and two or three other aspirations in other places yielding no fluid the wound was dressed antiseptically. The course of the case was marked by attacks of dyspnœa. On the 22nd he was much collapsed. Pulse 102; respiration 40. There was dulness at the right base and tubular breathing. He had an alarming attack of dyspnœa on this day, passed a restless night, became cyanosed, and died on the 23rd. The minimum temperature during illness was 98° to 99°; maximum 99·4° to 101·2°. Quantity of urine passed varied from 10 oz. to 24 oz. per twenty-four hours. Post-mortem examination showed an enormous mass of new growth filling the left side of the chest, in the pleural cavity, depressing the diaphragm, and extending across the middle line. The pericardium was displaced to the right of the mid-sternal line, and was adherent to, and implicated by, the growth. The left lung lay completely collapsed along the spine; the bronchi on the right side were full of secretion, and the lower lobe of the lung contained a recent infarction. Some outlying nodules of new growth lay along the spine, behind the parietal pleura. The upper part of the tumour was pale yellow; central part pulpy and caseous; its lower part firm and white. The splenic capsule was thickened; liver and supra-renals normal. The growth was a round-celled sarcoma. The points of interest in the case were:—1st, Short history of illness, the patient being strong and well enough to play cricket only nine weeks before; 2nd, the physical signs of pleural effusion, with the exception of the slight action of vocal functions, in the bulging of chest and displacement of heart—nor was there any sign of centripetal pressure. 4. The rapid growth of the tumour, for when first seen the impulse of the heart was one inch within the right nipple, and later it shifted to an inch outside that limit. Had the caseous matter removed been examined microscopically, perhaps the true nature of the case would have been at first recognised. The growth probably started from the anterior mediastinum.—Dr. DOUGLAS POWELL said that so far as the physical signs went the case showed no distinction from one of pleural effusion, except in the result of puncture. He believed that when that test is thoroughly tried it is conclusive in diagnosis. For if in making the puncture the needle is found to be grasped by a mass, and still more if portions of that mass are removed by it, there should be no further doubt respecting diagnosis. Generally in these lymphomatous tumours pressure signs are not marked, for they often surround vessels without invading or compressing them until quite at the last, so that the only diagnostic point was the result of puncture.—The PRESIDENT said it was certainly to be regretted that the material removed by the trocar was not submitted to microscopical examination. Still he could not agree with Dr. Powell, that failure to get fluid on exploration rendered the diagnosis certain. In two cases he recalled, where abortive punctures were made; and had he not felt sure of the presence of fluid he might have been led to regard them as cases of solid growth. Punctures should be made in more than one place before finally deciding in favour of tumour. The case seemed to be one of lympho-sarcoma of very rapid growth and degeneration.—Dr. TAYLOR mentioned a case of empyema following pneumonia, when a first puncture failing, a second was made with a larger needle, and resulted in evacuation of the pus.—Dr. POWELL explained that he referred to cases of extensive effusion or extensive solid growth sufficient to cause displacement of the heart. In such cases the result of puncture would settle the diagnosis. Was there any hæmoptysis?—Mr. GOULD said that his impression of the result of aspiration was that the pleura was lined by a thick layer of concrete pus, which blocked the tube, and prevented the escape of fluid.—Dr. HALL, in reply, said that Mr. Butlin had examined the growth, and said that it was a sarcoma and not a lymphoma. The history of the case was unlike that of malignant growth. The lad got wet through when playing cricket, and from that time began to suffer from pain in the chest. Nine weeks afterwards he presented all the signs of a large pleural effusion, which *rapidly* increased. He had never heard of any tumour growing so rapidly as to displace the heart to so great an extent in so short a time, and he therefore had several punctures made. There was no hæmoptysis.

The Society then adjourned.

OBSTETRICAL SOCIETY OF LONDON.

AT the meeting on March 3rd (Dr. Playfair in the chair), Mr. LAWSON TAIT read a paper on Axial Rotation of Ovarian Tumours, leading to their Strangulation and Gangrene; three cases successfully treated by immediate Ovariotomy. The first case of the kind which the author had met with was that of a woman aged forty-eight, on whom he had operated for a femoral hernia, supposed to have been strangulated for two days. The patient died in five days. The autopsy revealed a small ovarian tumour not recognised during life. It was black and gangrenous from twisting of the pedicle. Of the three cases now recorded, the first was that of a woman forty-six years old. In March last the author diagnosed a small monocystic tumour, probably parovarian. On June 9th she returned with the tumour much enlarged, and suffering from intense abdominal pain. Immediate ovariotomy being performed, the author found the cyst of a black-pearly colour, universally adherent by recent lymph. The pedicle was twisted three or four times. The patient made an uninterrupted recovery, though no Listerian precautions were used. The second case was that of a woman aged thirty, who had noticed gradual increase of size for nine months. Sudden and violent pain in the abdomen occurred on Nov. 6th, followed by incessant sickness. Ovariotomy was performed on Nov. 17th, with Listerian precautions. The tumour was dark-purple, friable, and universally adherent by recent adhesions. Bleeding was controlled by the application of solid perchloride of iron. The pedicle was twisted twice. The patient survived, but made anything but an antiseptic recovery. The third case was that of a woman aged thirty-six, who had not menstruated for seventeen weeks, but had noticed an increase of size too rapid for ordinary pregnancy. Intense abdominal pain, followed by sickness, came on on Nov. 11th. Immediate ovariotomy was performed. The uterus was found occupied by a pregnancy of about the fourth month. The tumour was a parovarian cyst of the right side, and was of a pearly-black lustre, and the pedicle was twisted three times. Listerian precautions were used, and the patient made a better recovery than the second case, but not so good as the first. No symptoms of miscarriage appeared. In all these three cases the tumour was one of the right side, and the pedicle was twisted from within outwards and to the right side. From this circumstance the author deduced a theory as to the causation of the rotation—namely, that it is due to the alternate filling and emptying of the rectum. The fæces descending the rectum would act as a wedge, and the point of application of the force would be the most favourable possible in the case of a right-sided tumour.—Mr. KNOWSLEY

THORNTON related several cases in which, on performing ovariotomy, he had found the tumour gangrenous from twisting of the pedicle. He agreed with the author that immediate ovariotomy should be performed when symptoms arise leading to a suspicion of such a condition. In some cases, however, the necrosed tumour being excluded from septic influence, remained quiescent for a considerable time.—Mr. SPENCER WELLS thought that it was easy to account for the rotation of the tumour by the patients' changes of position. Moderate degrees of twisting were often found without any gangrene being produced. He had seen two patients who died suddenly from very profuse bleeding within the cyst, without its rupture, the pedicles being found twisted. Last year he had removed by ovariotomy a cyst necrosed from twisting of the pedicle, which had been supposed malignant on account of the pallor of the patient. She recovered perfectly.—Dr. BANTOCK had recently met with two cases in which small tumours were found with twisted pedicles. Both tumours were found adherent, and both patients had been attacked by sudden pain, followed by symptoms of peritonitis. He thought that the twisting produced no symptoms, but that the rupture of a bloodvessel was indicated by an attack of pain.—Dr. HEYWOOD SMITH thought that not only should ovariotomy be performed immediately if strangulation of an ovarian tumour were diagnosed, but that, given an ovarian tumour, this should be done should pain suddenly intervene at all. The same theory as to the cause of rotation as Mr. Lawson Tait's had occurred to himself while the paper was being read.—Mr. ALBAN DORAN said that Mr. Tait's theory with regard to the causes of torsion accorded with his own convictions, grounded on experiments made in the post-mortem room. Whether the torsion was progressive or not would depend on the length and elasticity of the pedicle.—Mr. LAWSON TAIT, in reply, said that he hoped that Mr. Thornton and Mr. Wells would publish their cases, with specific details. The rotation could not be accidental, as held by Mr. Wells, if the great majority of the tumours twisted were right-sided tumours, and the twist in a specific direction.

"A refutation of the account given by Professor C. M. Gardien, of Paris, in 1866, to the effect that the Princess Pauline de Schwartzenburg was delivered of a living fœtus some hours after she was burnt to death," was read by Dr. HAIN, Philadelphia. The author examined the evidence in support of Professor Gardien's account, and concluded that it was absolutely valueless.

HEALTH OF LARGE ENGLISH TOWNS.

ELEVENTH WEEK OF 1880.

THE rate of mortality in our large towns remains low. In twenty of the largest English towns, estimated to contain in the middle of this year seven millions and a half of persons, or nearly one-third of the entire population of England and Wales, 5592 births and 3075 deaths were registered last week. The births exceeded by 407, whereas the deaths were 200 below, the average weekly numbers during 1879. The deaths showed an excess of 5 on the decreasing numbers returned in recent weeks. The annual death-rate in the twenty towns, which had declined from 37·0 to 21·4 per 1000 in the six preceding weeks, was again 21·4 last week. During the past eleven weeks the death-rate in these towns averaged 25·9 per 1000, against 23·4, 25·2, and 27·3 in the corresponding periods of 1877, 1878, and 1879. The lowest death-rates in the twenty towns last week were—10·7 in Brighton, 16·5 in Leicester, 17·4 in Hull, and 17·9 in Wolverhampton. The rates in the other towns ranged upwards to 28·3 in Manchester, 28·5 in Nottingham, 30·6 in Plymouth, and 34·8 in Oldham. Measles continued to prevail in Plymouth, and caused 17 deaths during last week. In Oldham the high rate of mortality was partly due to the prevalence of measles and scarlet fever.

The deaths referred to the seven principal zymotic diseases in the twenty towns, which had slowly declined from 638 to 457 in the six preceding weeks, rose again last week to 476; these included 169 from whooping-cough, 113 from scarlet fever, 91 from measles, 39 from diarrhœa, and 30 from fever, mainly enteric. The annual death-rate from these seven diseases averaged 3·3 per 1000 in the twenty towns, and ranged from 0·8 in Portsmouth to 9·9 in Oldham, and 15·3 in Plymouth. Whooping-cough showed the largest proportional fatality in Plymouth, Norwich, Salford, London, and Manchester; scarlet fever in Oldham and Norwich; and measles in Plymouth, Nottingham, Oldham, and Hull. Fever, chiefly enteric, caused 10 deaths in London and 4 in Sheffield. Of the 23 deaths from diphtheria in the twenty towns 18 occurred in London. Small-pox caused 11 deaths in London, but not one in any of the nineteen other large towns. The number of small-pox patients in the Metropolitan Asylum Hospitals, which in the two preceding weeks had declined from 185 to 172, were 166 on Saturday last; 23 new cases of small-pox were admitted to these hospitals during last week, against 49 and 39 in the two previous weeks. The Highgate Small-pox Hospital contained 16 patients on Saturday last, one of whom, however, was not suffering from small-pox.

The fatality of lung diseases last week was not increased, although the mean temperature of the air was 5° below that of the preceding week. The deaths referred to diseases of the respiratory organs in London, which had declined from 1557 to 315 in the six preceding weeks, were again 315 last week, and were no less than 145 below the corrected weekly average; 220 resulted from bronchitis, and 65 from pneumonia. The annual death-rate from diseases of this class in London last week was equal to 4·5 per 1000, against 5·5 from the same diseases in Liverpool.

NAVAL MEDICAL SERVICE.

To the Editor of THE LANCET.

SIR,—I thank you for publishing my letter in your issue of March 6th, and trust attention may be now drawn to the fact that if promotion from surgeon to staff-surgeon be fixed at twelve years, a wrong will be done to those at present heading the list. I cannot assent to your editorial comment "that promotion can scarcely continue for long at ages so low as at present." I maintain that taking into consideration the presumptive ages of officers on the Inspectorial and Fleet Surgeons lists, it will, if present regulations be maintained, even improve still more; of course, I cannot say what it will become should the Admiralty permit further discoveries on the part of officers about to be retired from age.

One of the proposals for a new scheme is, I understand, to retire Fleet Surgeons at fifty-five years of age, another to give £1 a day retirement at twenty years' service. Both these would probably still further increase the flow of promotion from the junior ranks, but should a period of twelve years' "service" or "in the service" be fixed, the benefit of these retirements will be lost to the surgeons, and you will have them by and by doing the duties now delegated to Staff and Fleet Surgeons. The argument I have heard used as to "uniformity" with the army is, I think, a weak one indeed—our lives, our prospects, our everything being so widely different, that the greatest hardship of the army medical officer is his having to take a sea trip in going to or returning from foreign service. Compare the life of the surgeon of a gunboat in the Persian Gulf, on the east coast of Africa, with that of his contemporary serving in the army in India, who is the better paid, who has the most comfortable life?

You say foreign service in a junior rank is sometimes a grievance—certainly, but only when you are required to do what should be another man's turn. It is, as I remarked in my former letter, manifestly unfair that some should be allowed to serve almost continuously at home.

As you mention "meritorious service," I would draw your attention to the fact that every promotion so made under present regulations inflicts a wrong on those over whose heads the "meritorious" man passes; and I think it might be fairly demanded that such promotions, in whatever grade, should be supernumerary until absorbed in due course.

To do justice all round, to endeavour to make the naval medical service a trifle more attractive, will, I trust, be the aim of the committee now appointed to consider the question; to do so they have to keep us *ahead* of the Army Medical Department in *fixed* pay and in promotion. While I hope this may be effected by the new scheme, I am anxious at the same time that no wrong should be done those at the top of the list who have borne the heat and burden of the day.

I am, Sir, yours faithfully,

March 9th, 1880. SURGEON R.N.

THE LANCET.

LONDON: SATURDAY, MARCH 27, 1880.

THERE are few medical teachers in the universities of Scotland who better represent all that is good in their system of teaching than Professor STRUTHERS of Aberdeen, and Professor GAIRDNER of Glasgow. They are specimens of men of good powers and high tone who have chosen to devote their energies to teaching. It is not too much to say that their respective universities owe to each of them a debt of gratitude for the great increase in their prosperity of late years, and for the enhanced reputation of their medical degrees. It is inevitable, therefore, that we should feel a great interest in the evidence which two such teachers have to give on the great questions of medical reform which were being investigated before the abrupt and unexpected dissolution of Parliament, and which will claim attention from the new Parliament.

To take these witnesses in the order in which they were examined, we begin with Dr. STRUTHERS. Dr. STRUTHERS speaks with natural satisfaction of the education and examinations of the Scotch universities in general, and of that of Aberdeen in particular, and it is not disputed that their education is very good, and their system of examinations very efficient. There is, indeed, little to criticise in Professor STRUTHERS' evidence as regards the universities. Is it quite correct to say that they give no half qualifications? Do they not give a Bachelorship of Medicine, apart from a Mastership in Surgery? At the very least do they not charge separate fees for these degrees? Dr. STRUTHERS approves of the suggestion of the Duke of BUCCLEUCH that Conjoint Board examiners might sit together with University examiners. This concession seems to contain the germ of a settlement of the difficulty as regards the universities. But Professor STRUTHERS goes out of his way to extol the examinations of the Scotch corporations. He believed the Scotch corporations had a very good minimum standard, and he believed that if the London corporations and the English College of Surgeons would combine as the Scotch corporations had done that would be all that is necessary! What a delightful solution of a difficult problem, to find the perfection of a minimum examination in the Scotch corporations, and to call upon all other corporations to imitate. Now the world may all be wrong, and Dr. STRUTHERS may be right. But he is not with the majority of people who have pondered seriously on the defects of our examining system in thinking that the Scotch corporations are models of a minimum examination. It is almost amusing to see a Scotch witness give such a turn to his evidence as to give prominence "to the weak points of London and English schools," only to be remedied by turning them into institutions like Scotch universities, and indicating that all that the most earnest reformers should work for is to get the English and Irish corporations to imitate the Scotch ones. It is time to be outspoken in this matter, and to remind Dr. STRUTHERS of what he must well know, that there is an extensive impression abroad that the examinations of the Scotch corporations, if made to include more subjects, are less stringent than those of England in regard to the most vital subjects. This may be a wrong impression, but it is so extensively held that the best friends of the Scotch corporations are those who advise them to demand a system which will secure, as far as any system can, that they shall be placed beyond the risk of comparisons which are disparaging,—not those who speak of their joint boards as models to be copied. Dr. STRUTHERS says there is not a better joint examination anywhere than in Edinburgh. But this, though seeming to imply much, means nothing; for there is not, as far as we know, in any other division of the kingdom, a joint examination at all. Dr. STRUTHERS is rather weak on the subject of the Direct Representation. He is not against it, indeed; and yet he is not for it. He used to approve of it; but "when he saw a man like Sir JAMES PAGET coming forward in the face of ten thousand practitioners he was greatly impressed": his opinion had partly changed. It is as if Dr. STRUTHERS were all sound on the subject till he saw a sort of apparition—"a man like Sir JAMES PAGET"! Sir JAMES will feel flattered that a man like Dr. STRUTHERS thinks more of him than of ten thousand of his professional brethren. We expect the next change of opinion on the part of Dr. STRUTHERS will be in favour of conjoint boards, when they have among their advocates "a man like Sir JAMES PAGET." Moreover, we expect to recover him as an advocate of direct representation when we remind him that Sir JAMES PAGET is not opposed to direct representation. Rather is he in favour of it, as are five out of the eight members of the Medical Council so far examined. Their objection applies only to popular election.

Professor GAIRDNER, in his examination, expressed the opinion, which has so often been refuted, that a Conjoint Board would greatly deteriorate the efficiency of all the universities of Scotland. We will not go over ground which we have so often traversed. We would rather leave it to Dr. GAIRDNER'S own mind to satisfy itself that a movement for raising the minimum examinations cannot depress higher ones. To raise the base of a pyramid is to secure the raising of the whole structure. It is so with minimum and university examinations. Universities would feel compelled, for very honour's sake, to be far above the minimum standard. He objected especially to that part of the Medical Bills which enacted that students can only be affiliated with corporations in that part of the country in which they had passed the Conjoint Board. Dr. GAIRDNER says that his objection would be greatly lessened if this limitation were removed. Clearly it ought to be removed. The examinations should be so equal in every respect—their equality should be so guaranteed—that the student should be entitled to claim affiliation with any corporations he preferred, provided the corporations are to remain the licensing bodies. We are glad that in both Dr. STRUTHERS' and Dr. GAIRDNER'S evidence prominence was given to the unreasonableness of high fees being exacted from the student for the support of numerous corporations, though only receiving one diploma. This comes of having so many corporations to be maintained. We are not sure that Professor GAIRDNER, if more closely cross-examined, would not have

come out as a very good medical reformer. He confessed his inclination to a *Staats Examen* similar to that of Germany—like us, not seeing the force of Professor TURNER'S and Professor STRUTHERS' objections to that system, or some modification of it, for this country. There is one expression which Dr. GAIRDNER used which, we think, he would be willing to amend. He thought every practitioner should have a double qualification. Why a *double* one? He should have a complete one after a complete examination embracing all necessary subjects; but a double one implies a division in the knowledge of a general practitioner into halves, medical and surgical, which is now artificial and inconvenient, and ought to be obsolete. Dr. GAIRDNER boasts that all the bodies give a complete examination; what more reasonable than that this should carry a complete diploma?

Finally, there is nothing in either Dr. STRUTHERS' or Dr. GAIRDNER'S evidence to show us that the demands of medical reformers will abate in the least the demand for the degrees and the education of the Scotch universities.

THE *Gazette* of the 16th inst. contains a series of General Orders issued by the Local Government Board, under date the 8th of the present month, concerning the appointments of medical officers of health and inspectors of nuisances, whose salaries are partly repaid by moneys voted by Parliament, in substitution for the Orders which were issued soon after the passing of the Public Health Act, 1872. The new Orders appear to have been called for partly to adapt the phraseology to the Public Health Act, 1875, and partly to effect certain amendments in their details. Moreover, two additional General Orders have been issued applying to the qualifications and duties of medical officers of health of urban and rural sanitary districts, no portion of whose salaries is paid out of moneys voted by Parliament, the qualifications and duties of these officers having been previously left without regulation by the central authority.

As to the Orders relating to medical officers of health who are partly paid out of Imperial funds, and are more directly under the supervision of the Local Government Board, the changes in them appear for the most part to be verbal, in order to meet the altered form of the law since the Orders of 1872 were drafted, but a few touch matters of considerable importance. The reference in the preamble and other parts of the earlier Orders relating to the appointment of medical officers of health to two or more districts is omitted, for what reason does not yet appear, and the possibility of their being appointed to more than one district is noted only of the medical officers of health of rural sanitary districts, and that in relation to their appointed duties. Is the Local Government Board contemplating dealing with the appointment of medical officers of health for two or more sanitary districts in a more comprehensive fashion than hitherto? Let us hope so. In respect to tenure of office the clause limiting first appointments to five years is omitted, and with the omission we trust that the Local Government Board may see a way to sanctioning appointments for a longer period than it has yet done, or even for a permanency. Not that the expunged clause seemed to the uninitiated to forbid this course before in the case of reappointments, but we are given to understand (not daring to express an opinion ourselves on so abstruse a subject) that it did form a bar to the Local Government Board acceding to the wishes of local authorities that their medical officers of health should be permanently appointed. We note, in passing, an addition to the clauses as to the salary, which directs that it shall be considered as accruing from day to day.

The changes made in the section of the Orders relating to the duties of medical officers of health are few, but of considerable moment. The sentence of the earlier Orders adapting them to the case of so-called combined districts, is omitted in the Order as to the medical officer of health of an urban sanitary district, but retained, as already mentioned, in the Order as to the medical officer of health of a rural sanitary district. In Clause 6, which in the earlier Orders directed the medical officer of health, on receiving information of the outbreak of any contagious, infectious, or epidemic disease of a dangerous character within his district, to visit the spot without delay, and inquire into the circumstances of such outbreak, and to advise the person competent to act as to the measures which may appear to him to be required to prevent the extension, &c., the words have been added "after such outbreak," "and in case he is not satisfied that all due precautions are being taken," to do so and so. This addition will relieve many medical officers of health from an unpleasant difficulty they have not unfrequently been placed in by the imperative wording of the clause in the earlier Orders. They have felt that no discretion was left to them in the matter to which it relates when they have been informed of infectious disease in families possessed of every means and of competent advisers for dealing with it without prejudice to the public. We are aware of cases where a medical officer of health has, by reason of this regulation as it formerly stood, been placed in circumstances of considerable difficulty and unpleasantness between his sanitary authority on the one hand and well-to-do families and his professional brethren on the other. The words added to the clause would appear to remove all objection to it on that score. The next clause as to duties (7) supplies an omission to which very much of the imperfection observed in the carrying out of the public-health law is due. The earlier Orders dealt with the inspector of nuisances as having only certain incidental relations with the medical officer of health, and not as part of an organisation in which the medical officer of health must be the co-ordinator, if it were to be worked with any intelligent regard to the object for which it was designed. The present Orders provide that, subject to the instructions of the Sanitary Authority, the medical officer of health "shall direct or superintend the work of the inspector of nuisances in the way and to the extent that the Sanitary Authority shall approve." This would be sufficient to remedy the evil we have referred to, and to place the inspector of nuisances in proper relationship with the medical officer of health, if we could depend upon the advice tendered by the general (lay) inspectors of the Local Government Board—the inspectors who will be concerned in the matter—to sanitary authorities as to the *extent* to which the inspector of nuisances' work shall be directed or supervised by the medical officer of health. It cannot but be remembered that it was owing to the advice of these inspectors the apparent antagonism between the duties of

the medical officer of health and the duties of the inspector of nuisances shown in the earlier Orders, and too frequently in practice converted into an actual antagonism, was originally set up, to the immeasurable detriment of public-health administration. However, now that the Local Government Board has seen the defect in its earlier Orders, and removed it, in a fashion, from the present Orders, we must hope that it will be enabled to succeed in obtaining and securing a reasonable interpretation of the clause as it now stands, and that its obvious intention shall not be frustrated by vagaries of its subordinates. The important addition of "milk," which had been omitted from Clause 9 in the earlier Orders, has been made to the articles of foods which a sanitary authority may cause to be inspected and, if they deem necessary, seized. In Clause 14, the directions as to the contents of a medical officer of health's report have been rearranged, and Clause 15 no longer requires that he shall make quarterly reports to the Local Government Board.

The duties imposed upon medical officers of health of urban and rural districts, no part of whose salaries are paid out of imperial funds, are the same as those of medical officers of health whose salaries are in part so paid, with the exception that he is required himself, within seven days of his appointment, to report the same in writing to the Local Government Board.

The new Orders relating to Inspectors of Nuisances are substantially the same as the earlier Orders.

IT is one of the penalties of education by experience that we learn to recognise facts before we are able to define them, but without doubt this is the natural mode of gathering knowledge. The child becomes acquainted with the leading characteristics of fire by almost blinding his eyes as he tries to stare at it, and burning his fingers when he attempts to grasp it, long before he is able to describe or even name the element. Practical knowledge is always in advance of philosophic information with regard to the common things of life, and the majority of veritable and lasting discoveries are made by practical men. It should, therefore, occasion no one any surprise to find that many of the most familiar facts in science and subjects of daily observation are undefined and seemingly undefinable. Every medical practitioner and ordinarily intelligent layman *knows* what is meant by insanity, but as yet no expert or general observer has been found able to frame a definition of the abnormal state which shall cover the disease without including some of the phenomena of healthy life by which the so-called "symptoms" of mental derangement are apt to be simulated. There will be a red-letter day in the chronicles of legal medicine, and a new era in lunacy practice will be inaugurated, when, if ever, a satisfactory definition of insanity is accomplished. We are not about to attempt the feat. It would need to be more than a triumph in technicology.

As the matter now stands, probably no member of the profession would be prepared to admit that he could fail to recognise a "lunatic" or "person of unsound mind," if one were submitted to his judgment; it is, however, impossible to feel sure, except in regard to the most strongly-marked cases, that the opinion one practitioner forms will coincide with that pronounced by another equally trustworthy examiner. Still less easy is it to determine whether the view which may afterwards be taken by a judge and jury looking back on a case of alleged insanity, will ratify the opinion formed by the medical practitioner at the outset on his personal responsibility, and condone such measures as he may have deemed necessary for safety. Much of the delay and no small share of the disappointment attending the treatment of the insane, may be directly traced to the want of a common understanding as to the characteristics of insanity, at least such an understanding as would prevent subsequent dispute as to the very existence of the disease.

The position occupied by the medical man consulted in a case of lunacy is at the present moment both peculiar and painful; it wholly cripples his action, and must effectually, while it is forced upon him, hamper the progress of clinical science and postpone the discovery of improved methods of treatment. In the case of no other class of patients is the medical adviser so strangely placed. It is not enough that a sick person is brought to him for instant judgment, he is confronted at the outset with the danger of a legal penalty in the event of failure to recognise that he is, perhaps, being hoodwinked by the friends, or misled by the fancies, of his patient. While the risks run by other professional men chiefly concern the skill and fidelity of their work as a whole, the practitioner called in to certify in a case of alleged or supposed insanity is placed in jeopardy by his first expressed opinion as to the nature and needs of the patient; and possibly he has had no special training in diagnosis. He is required to assure himself of the good faith of the persons who apply to him, and to form a final and irrevocable judgment as to the verity of such indications as are presented by the alleged lunatic *before* he can safely treat the case.

No one who has not had considerable experience in the early and instant diagnosis of mental disease can have any notion how difficult and embarrassing this task really is. The worst, because the most dangerous, cases are often the least well marked, and a mistake on the side of what seems to be "humanity" is often especially easy where it must be most disastrous. It would be no light task to make a hasty diagnosis in cases of the class we are now indicating, if nothing more than the professional repute of the practitioner were staked in the balance, but he is handicapped with the dread of penal consequences if he errs. On either side perils beset him. If he places a sane man under treatment, he may be cast in a suit for damages. If, on the other hand, he permits a lunatic to go at large terrible events may ensue, for which he will be held morally if not legally responsible. It is easy for lawyers and jurymen to look back on the history of a case of this character, and point to errors of judgment committed by a medical man so placed, but justice requires that the difficulties shall be recognised, and full weight given to the embarrassing nature of the act the practitioner is required to perform under pressure, and amid untoward circumstances, before his conduct is condemned or even severely criticised.

All the difficulty and inconvenience arises from the mistaken policy of confounding functions and responsibilities

which are wholly distinct, and, as we believe, incapable of being adequately discharged by the same authority. Why not let the legal questions involved in a recognition of insanity be settled by some official agency, leaving the medical practitioner to study and treat his case in peace, as a professional clinician and therapeutist? If a man has a fit of apoplexy or epilepsy, or fever with active mental excitement, or even the furious delirium excited by drink, the law does not interpose a formal and embarrassing process of certification, with socio-legal aims, between the medical attendant and his task. He can at once set to work to treat his patient, taking all such measures, including coercion, as may be necessary to effect a cure. Considerations of disability for the duties and privileges of health are left to the patient and his lawyers. It would be perfectly easy to place mental disease on the same footing as bodily disease in these respects. At the outset of an attack of "insanity" there is seldom any real difficulty in determining what sort of treatment it requires. The difficulty, where there is any, arises later; just as there might be difficulty, if a medical man were called in after the subsidence of the first symptoms of an acute disease, in determining whether the patient was really ill or malingering.

One of the immediate advantages of separating the civil or legal questions arising in connexion with a case of insanity from the purely medical would be, that the chief motive for concealing the existence of mind disease would be extinguished. We should not then, as now, be perplexed with the delicacy of deciding whether an eccentric person is insane enough to require "certificates," or may be treated at home, or in the family of a medical practitioner, without contracting that "stigma" of lunacy which the friends of the "nervous" so greatly dread and deprecate.

It is surely impossible that the obvious course in regard to this matter of "certifying" will be indefinitely refused. No reform of the Lunacy Laws can be effectual which does not deal with the subject of certifying; and it is not easy to see how it can be dealt with, except by separating it from "treatment" and placing it on a legal footing. Undoubtedly medical knowledge is indispensable on the part of the person giving a certificate, but we are convinced that he should be an *official* appointed by public authority, and not a practitioner—engaged in the discharge of ordinary professional duties—however distinguished or expert. The need of Medicine as a science is to put an end to the severance of "mental disease" from general pathology. Whatever the relations of mind and matter may be, we cannot afford to forego the light thrown on ordinary disease by mind-symptoms; and we do not think "mental medicine" has gained anything, or been rendered more valuable to humanity, by being studied and practised as a specialty. The first step to retrieve errors and amend the situation is to eliminate the *legal* element from what is really a *medical* question—namely, the diagnosis and treatment of insanity. This is necessary before we can hope to find a satisfactory answer to the question—In what does insanity consist?

M. DUMONTPALLIER described, at a recent meeting of the Académie de Médecine, an apparatus for the purpose of lowering the temperature of the body, continuously or intermittingly, the effect of which can be exactly measured. The apparatus consists of two parts. First, a refrigerating envelope, for the purpose of applying to all parts of the body a layer of running water of a fixed temperature. The envelope can be reduced to the required dimensions to encircle the regions of the thorax or abdomen. It is composed of two pieces of silk, so sewn together that a tube of india-rubber, forty metres long and one centimetre in diameter, passes through the parallel spaces left between the stitches. This envelopes the body from the axilla to the groins, and the current of water is never interrupted, whatever be the weight or movement of the body. Moreover, a little apparatus, introduced into the course of the tubes, indicates the least alteration in the flow. The second part of the apparatus, the "distributor," consists of "robinets" placed at each extremity of the tube, which permit the regulation of the flow of liquid, and thermometers adjacent show, at all times, the temperature of the water flowing into and out of the india-rubber tube. The apparatus is supplied by a syphon placed in a reservoir, one metre and a half above the patient. In the use of the apparatus, the axillary and rectal temperature having been noted, the patient is enveloped in the refrigerator, placed in the bed, and covered with the bedclothes. The taps are then opened, and the water quickly circulates through the whole length of the tube. The circulation of the water is so rapid that at first the two thermometers, at entrance and exit, show nearly the same temperature; soon, however, that at the exit rises, in consequence of the abstraction of heat from the body by the flowing water. Then this thermometer gradually falls, because the heat of the body is insufficient to maintain the temperature of water which circulates at the rate of nearly two litres a minute. In from fifteen to twenty-five minutes the thermometer of exit falls 11° or 12° C., and every ten minutes the axillary or rectal temperature will be found to have fallen one or two tenths of a degree; and after an hour, or an hour and a half, the fall of temperature is from 1° to 2° C. Then, if the stopcocks are closed, the thermometers rise equally and progressively, although the rectal or axillary temperature remains stationary for from fifteen to twenty minutes. Sometimes the rectal temperature continues to fall for half an hour or an hour, while the axillary temperature remains stationary or exhibits a tendency to rise. Apparently, in this case, the surface of the body withdraws the heat from the internal parts. Thus, by such an apparatus, the patient remaining in bed, the temperature can be lowered at will during any period and the effect observed.

M. DUMONTPALLIER has studied carefully the effect of partial and total refrigeration of the surface, and concludes that when it is limited to the hairy scalp, to the occipito-spinal region, or to the anterior abdominal or hepatic region, it has little or no influence on the general temperature of the body. The refrigeration of the entire surface of trunk and limbs permits the temperature to be lowered one or two degrees in an hour or an hour and a half. But the refrigeration of the surfaces of the thorax and abdomen by means of the envelope will lower the temperature to the same extent. Ignorance of all that is done outside France is a characteristic of modern French workers. An apparatus essentially the same as that of M. DUMONTPALLIER has for some time been

employed by LIEBERMEISTER, and will be found figured in the article on "Abdominal Typhus," in the first part of EULENBERG'S Cyclopædia, now in course of issue.

Annotations.

"Ne quid nimis."

KING'S COLLEGE, LONDON.

THE position held by King's College in the educational world is somewhat anomalous. Those whose memories carry them back to the time of its foundation know how it originated. They recall the sectarian spirit that animated its founders, zealous for the cause of religion, and fearful of the dangers which threatened society by the establishment of the college in Gower-street on a purely unsectarian principle. Meanwhile the world has been growing wiser. The fears have proved to be groundless, and even in Oxford and Cambridge admission can now be had to all but a few of the colleges, free from any subjection to religious tests. King's College, London, however, still retains its tests, claims to act up to the letter of its charter; and yet somehow or other draws to it students and teachers who would probably dispute that they are held under any bondage whatever in the matter of religious opinion. It cannot be that King's College wishes to remain shackled in its selection by reasons which place it on a sectarian basis, for to admit individuals to its secular offices only through the portal of orthodoxy in religion would so narrow its field as to do more harm than good to the institution. The tendency of the day is towards absolute freedom in religious opinion, and to respect the motives of every man who ventures to differ (be it widely or slightly) from so-called orthodox belief. To insist on a rigid conformity to particular doctrines is to uphold the system of tests which one would have thought Englishmen had now recognised to be unjust, if not immoral.

THE FORCE OF PURPOSE.

THERE is no physiological reason to suppose that mental purpose augments the force available for physical activity, but it certainly calls a larger amount of the reserve stock of potential energy into operation, while it concentrates the powers of the system on the particular end in view. How else are we to account for the familiar fact that under pressure of circumstances, or at the bidding of motives that incite to feats of unwonted exertion and endurance, persons of no extraordinary physique are enabled to perform seemingly impossible achievements? Sometimes the energy of an enterprise may, as it were, overpower the agency by which it should be effected, and the result is a break-down in the crisis of accomplishment. As a rule however, happily, determination will carry a man through undertakings which seem so vast as to threaten to overwhelm him. Possibly at no time are the "possibilities" of personal work of a nature which combines activity of both mind and body more conspicuously illustrated than during a "general election." And few events of the class have called out more latent vigour than the time through which we are now passing. From the stupendous exertions of Mr. Gladstone in Scotland to the sleepless energy of some of the candidates and their agents in large constituencies like those of the metropolis, the process of "calling up the reserves" of psychophysical force is proceeding at a pace and to an extent rarely equalled. Presently the crisis will be passed, and then the exhaustion will begin to declare itself. Those will be wise who recognise what it is they are doing. The stock of force on which they are drawing is not increased to meet the occasion. They are simply using up in an emergency what nature has designed to be held in reserve like the residual air in the lungs, or the volume of atmosphere in the wind-cushion of a set of bag-pipes. If this reserve be exhausted there will be no resilience, and nothing left to play upon. The illustration is inadequate, but it will suffice to point out our meaning. The fact that a great effort *can* be made must not be assumed to show that such an outcome of force is natural. While the feat is in progress, a serious break-down may occur at any moment, and the power of recuperation will in that case be found to be itself exhausted. When the special exertion is over, the fatigue that follows will be more than common weariness. It will be a "dead-point" in the progress of vitality at which special measures of help and recovery are sure to be necessary.

SCURVY AND THE PROPOSED ARCTIC EXPEDITION.

LAST week we published a letter from Commander Cheyne, R.N., complaining of a criticism of ours based on remarks made by him on the question of the outbreak of scurvy in the last Arctic expedition under Sir G. Nares. As there is some discrepancy between what Commander Cheyne says he stated in his speech at the Mansion House and the report of that speech as it appeared in *The Times* of the day subsequent to its delivery, we place both before our readers. In his letter to us, Commander Cheyne states what he said at the Mansion House was "that the seeds of scurvy were in the constitutions of the men of the last expedition before they started on their spring sledging work." Had this been all he said, it would have called for no comment from us; but *The Times* reports Commander Cheyne to have said—"The last expedition came back broken down with scurvy, and the reason was *not the want of lime-juice*, but the want of proper ventilation between decks on board ship, and the want of fresh air and exercise." This statement, made in the face of the evidence obtained by the commissioners appointed to inquire into the outbreak of scurvy among the members of the sledging parties of the late Arctic expedition, gave us reason to fear that Commander Cheyne was disposed to pay more regard to mere hygienic arrangements for the preventing of scurvy than to trust to its absolute prevention by the use of lime-juice; and this opinion was strengthened, because we could not find in any part of his reported speech that he made reference to the antiscorbutic value of lime-juice, but chiefly that he placed reliance on improved ventilation to prevent an outbreak of the disease. It is satisfactory to find that our article has drawn from Commander Cheyne a full confession of faith with regard to lime-juice—a confession that was certainly required after a perusal of his speech at the Mansion House.

THE HISTOGENY OF GRANULAR KIDNEY.

IN his recent communication to the Pathological Society Dr. Saundby opened up new ground in a well-worn, but still disturbed field. Years ago, Dr. George Johnson asserted that the granular kidney was the result of changes mainly limited to the epithelial lining of the urinary tubules. He created the phrase, "desquamative nephritis," and held that the relics of degenerate and atrophied tubules formed the mass of the contracting tissue. Since then the tendency has been to relegate to the tubules a passive part in the process, and to establish the view that the change is mainly that of intertubular new formation precedent to the tubular atrophy. Dr. Saundby showed specimens to prove that there was room for a third view, and that the apparently startling one, that the newly-developed connective tissue was formed from the proliferation of the epithelial nuclei. The

strangeness of the fact was lessened by the consideration that the kidneys are mesoblastic in origin—an argument, by the way, that could not apply to the alleged similar derivation of connective tissue from the hepatic and mammary epithelium. Dr. Greenfield confessed that he had not been able to trace the development of connective tissue from the renal epithelium, but very forcibly and suggestively urged that in the glomeruli were to be found the primary lesions upon which tubular atrophy and other changes followed. His remarks travelled over a wider range than the single point raised by Dr. Saundby; for he added that there was less evidence of intertubular change in the granular kidney than in the large white kidney, thereby, indeed, reversing much generally-accepted opinion, and making it seem as if the terms "parenchymatous" and "interstitial" as applied to these two forms of Bright's disease have been misplaced. It would be impossible, however, to do justice to either observer without far more careful scrutiny of the subject than can here be given to it. It is obvious, however, that much scope is opened up for further careful research in the minute anatomy and the pathology of the various forms of nephritis and renal degeneration. Especially should attention be paid to the slighter and less advanced cases of "granular kidney," if correct inferences upon its histogeny are to be arrived at. To do this thoroughly would require the resources of a pathological laboratory and workers willing to devote their whole time to this investigation. The same indeed might be said of almost every branch of pathology—so multitudinous are its unsettled questions, or rather, its questions which have been only partially settled by being viewed in too limited a manner.

WHAT IS FOOD?

IT seems easy to say that food is what we eat and drink and the body lives upon. By an extension of the formula it may be contended that the mind, too, feeds, and what maintains its strength and gives it energy is also food—"food for the mind," as the phrase goes. Meanwhile we are no nearer a direct and full answer to the question, What is food? That there are limits to the class of materials which may be designated "food" is obvious, because what is one man's food is another's poison. This brings us, practically at least, somewhat nearer the point we want to reach. It may be affirmed generally that, owing to differences of need, and of method, in the maintenance of life in the composite organism of mankind it must be vain to anticipate the discovery of a universally useful dietary. Not only will the food of man always vary with the conditions of his daily life, but with the peculiarities of his individual temperament. A consideration of great moment, which would seem to be too commonly disregarded, is the need of something more than mere digestibility—that is solubility—of the articles offered to the body for its sustenance. It is neither sound policy, nor practicable, to leave what may be termed the organic appetites of the body out of the calculation in arranging for the supply of "food." Just as there is such a thing as somatic life, and another such thing as interstitial or organic life—that is, the life, or lives, of the component parts of the body—so there may be organic appetites and predilections, as well as the gross tastes and likings and dislikings of the individual. We can conceive of a point at which the subtle refinements of skill in adapting "food" to the physiological requirements of the body may break down. Food may be not only too much concentrated, but too little palatable, if we may so say, to the stomach itself, or the organism, to be acceptable. The body is not wholly nourished by physico-chemical processes, such as those of endosmosis and the intermixture of fluids and gases, or the mutual reaction of substances with what re called "chemical" properties. The researches of recent scientists go to show that even the minor constituent parts of the organism have their independent characteristics, and they may also have their individual predilections. In practice we find that many well-intentioned and docile patients *cannot* take what is "good for them," perversely wax fat when they ought to grow lean, or in some other way falsify the prognostications of the empiricist. Setting aside the question whether these idiosyncrasies are natural or acquired, true or corrupt as indications for the kind of food to feed upon, we venture to think they should have great weight; and however excellent and ingenious some of the new schemes of nutrition and special devices for fattening or thinning the body may be, human nature, as we find it, will have to bow to them.

PHYSIOLOGICAL PROPERTIES OF EMETIN.

A PHYSICIAN in Dorpat, v. Podwyssotzki, has recently published in the *Archiv für Experimentelle Pathologie* the results of his observations on the effect of pure emetin. He states that the emetin usually sold contains tannic acid and colouring matter. When purified from these foreign substances it was found to be soluble in alcohol, ether, bisulphide of carbon, chloroform, and all ethereal and fat oils, but soluble with difficulty in cold water, benzin, and petroleum ether. It melted at 62° to 65° C. (144° to 149° F.) It tastes rather sharp and bitter, as do also its combinations with acid. If kept in the dark it remains white, but assumes a yellowish hue when exposed to the sunlight. It crystallises out of concentrated solution of petroleum-ether or benzin in needles, and when treated with concentrated nitric acid it yields oxalic acid. The subcutaneous injection of 0·005 to 0·01 gramme in frogs caused gradually developing paralysis and loss of reflex excitability. The irritability of the muscles, however, remained unaltered both with direct and indirect stimulation with induction currents. Frogs recovered completely from the paralysing influence of the smaller of the above doses in the course of twenty-four hours, whilst the larger doses proved fatal. Injections made into the exposed hearts of frogs caused, after a short period, various irregularities, the ventricle contracting peristaltically, its force diminishing, and its frequency being less than that of the auricle. Ultimately the whole heart passed into a condition of perfect relaxation or diastole, which could not be removed either by mechanical stimuli or by atropine. Experiments on cats, dogs, and rats corroborated the statements of earlier observers, the injection of about one grain and a half rapidly leading to death without previous vomiting. The animals quickly became very weak, fell over to one side, and died in feeble convulsions in consequence of cardiac paralysis. The effects on the blood-pressure were precisely those described by Dr. Dyce Duckworth. He was unable to observe that the drug had any influence on the vagus.

SURGEONS PRACTISING DENTISTRY.

ALL medical men engaged in dental practice who value the reputation of their specialty, will thank Mr. W. A. N. Cattlin, the President of the Association of Surgeons practising Dental Surgery, for the bold and able way in which in his recent address he expressed his disapproval of an Act by which 5289 persons have been put on to a recognised dentists' register, only 533 of whom have given evidence of either a medical or a dental education. It is gratifying to hear from Mr. Cattlin that the sub-committee of his Association will use every endeavour to urge the Legislature to prohibit unqualified persons assuming the title of physician or surgeon alone, or in convenient and misleading conjunction with any other word or words. An evil principle has been acted on which may lead, if not soon disavowed, to still deeper injury to the

medical art. We may have surgeon bone-setters and surgeon corn-cutters if the reckless legislation of recent years is not vigorously opposed.

ORAL INSTRUCTION OF THE DEAF AND DUMB.

AN interesting example of the success which may attend persistent and well-directed efforts to overcome what at first sight appear insurmountable difficulties is afforded by the history of the Training College and School for the Deaf and Dumb in Fitzroy-square. One day last week a number of ladies and gentlemen assembled at Grosvenor House to witness the oral examination of sixty or seventy pupils of this excellent institution, under the direction of Mr. Van Praagh. Not very long subsequently to the commencement of the enterprise we took occasion to explain in some detail the nature of the system of lip-reading, by which deaf-mutes are taught to communicate their ideas in audible and articulate speech, and the results of the examination on the occasion referred to were such as to afford the liveliest gratification to the party assembled, and to reflect great credit on the director and his assistants for the patience and skill with which they have remedied, as far as is possible, one of the most grievous defects to which human beings are liable.

UNACKNOWLEDGED SERVICES.

THE people of London and the suburbs generally, especially those who pass most of their lives in the close atmosphere of densely populous districts, must have been a good deal astonished by the recent distribution of honours in the City of London. We say nothing as to the merits of the gentlemen who have just been knighted; our concern is with the neglect to honour one at least whose name has been identified with the timely rescue from enclosure and the preservation of fully six thousand acres of open airing and recreation ground in Epping Forest. When Mr. Nelson, the City Solicitor, took this matter in hand, he was almost alone in his work. The boon his enterprise has conferred directly on the pleasure, and indirectly on the health, of the people cannot easily be over-estimated. His services in the inauguration of the system of free bridges have been not less public-spirited, and deserve to be widely appreciated. Through a long series of years Mr. Nelson has laboured for the interests of the people of the metropolis; and it is strange, to the extent of being inexplicable, that his energy and achievements have been overlooked. Our own more immediate interest in the matter relates to the health aspect of the case. In the long and hard struggle to stay the spoliating activity of those who cared less for the preservation of open spaces than for other considerations, Mr. Nelson was ever, in his private, and as far as possible in his public, capacity on the side of the people; and it would have been only just and generous had his labours received the acknowledgment they deserve. We begin to think it is true that what happens is the unexpected.

ANIMAL VACCINATION IN INDIA.

AT a meeting of the Vice-Regal Council, held on the 20th February last, the Honourable Sayyad Ahmad Khan moved that the Vaccination Bill, which he had introduced on the 30th Sept., 1879 (see THE LANCET, Nov. 29th, 1879), should be referred to a Select Committee. The Bill, it will be remembered, if passed, would make vaccination compulsory, and it provides for vaccination from heifer lymph, as well as from humanised lymph, but gives precedence to the former sort of lymph, and permits the use of humanised lymph under certain specified circumstances only. The Bill, moreover, provides that it should have no force except in municipalities and cantonments, where adopted by the local authorities. It is, in fact, a permissive Bill. The promoter stated that the Government of India had now before it information from local governments, municipalities, and other sources, which would enable them to form a judgment as to its acceptability or otherwise. It was supported both by Hindus and Brahmans in a way to prove that it contained nothing inimical to their religious beliefs or practices; and he referred to an important statement of the Lieutenant-Governor of the Punjab, to the effect that a child of the age at which vaccination is practised is not, according to Hindu law, liable to ceremonial impurity; and therefore, even though vaccine may be impure to Hindus, the child would not be made impure by it. He denied that Dr. Cunningham's "Sanitary Primer" and his own Bill had for the first time made the source of vaccine matter known to Hindus at large, as asserted by the Punjab Hindu Association. Treatises on the subject, giving minute information as to the lymph, existed in the Hindi and Urdu languages, and had been published in 1860 and 1867. He again urged his argument for compulsion, observing that a hundred thousand lives are lost every year in India from small-pox. "In view of this awful fact," he said, "I must confess that I find it difficult to conceive how any vague apprehension and opposition, or the existence of unfounded prejudices, can have greater weight than the absolutely certain fact of the enormous loss of human life which is caused by the absence of a well-organised system of compulsory vaccination." After a brief discussion the Bill was referred to a Select Committee, with instructions not to provide for its introduction in any municipality or military cantonment, unless the authorities were satisfied that there was a preponderance of native opinion in favour of it, so far as could be ascertained.

STEEVENS'S HOSPITAL MEDICAL SCHOOL, DUBLIN.

THIS institution, which of late has not been in a very flourishing condition, may now be said to have collapsed, a result consequent on the recent action of the governors in filling up two vacancies in the hospital. For one of these Mr. Warren, lecturer on anatomy, and connected with the school for the past ten years, was a candidate, and although put forward by the medical committee, he was passed over by the governing body, who elected a gentleman very much Mr. Warren's junior. It is stated that several of the lecturing staff of the hospital have in consequence resigned their appointments in connexion with the school.

CONVENTION ON VITAL STATISTICS.

THE National Board of Health of the United States have issued an invitation to *all* (? within the limits of the United States) who are interested in vital statistics and charged with the duties of State or municipal registration to meet with it in Washington, on the 6th May next, for the purpose of considering the best method for the collection and publication of such statistics. The convention is more especially to consider mortality statistics, for which (the invitation states) it is extremely desirable to secure more uniformity than exists at present in nomenclature, in nosological arrangement, and in the forms of tables or graphic representations intended to show the relations of causes of death to locality, meteorology, sex, age, nativity, occupation, and birth-rate. Registrars of vital statistics are invited to forward to the Board as soon as possible, their suggestions as to nomenclature, blank forms, &c., including the following points:—1. Nomenclature. That of the Royal College of Physicians is suggested as best for present use, but if this be objected to, what substitute is recommended. 2. Copy of the State or municipal law or ordinance relating to registration of births

and deaths, with observations thereon. 3. Copies of blank forms and specimen pages of registers of all sorts used in registration, with observations relating thereto. 4. Forms of statistical reports recommended for use in asylums, dispensaries, hospitals, prisons, and other public institutions. 5. Forms for the registration of births, deaths, and marriages. 6. Opinions as to the registration of certain contagious and infectious diseases, stating diseases, and suggesting forms.

ROYAL COLLEGE OF PHYSICIANS.

AT the extraordinary meeting of the College on March 22nd, after the minutes of the previous meeting had been confirmed, the new regulations for the College Licence were finally approved. The President then addressed the Fellows on the completion of his year of office. James Risdon Bennett, M.D., F.R.S., was re-elected President of the College, and Dr. Wilks was admitted a councillor.

SMALL-POX IN DUBLIN.

FOR many months an epidemic of small-pox has existed in this city, the deaths averaging about five each week. Although the mortality is slight, yet the continuance of the epidemic after so many months reflects unfavourably on the sanitary authorities. Neglect of vaccination seems to lie at the root of the evil, for the relieving officer of the South Dublin Union recently reported that there were 260 non-vaccinated children in the Union. Dr. MacCabe, Local Government Board Inspector, has recommended that twelve of the most respectable defaulters should be prosecuted, as there was no prospect of small-pox dying out in Dublin so long as such a state of things was permitted to exist. This suggestion has been adopted, and it is also probable that a special prosecutor will be appointed for these cases of neglect of vaccination.

A GRIEVANCE OF SICK PAUPERS.

THE REV. H. A. GOODWIN of Sambourne Rectory, Romford, gives prominence in the *Chelmsford Chronicle* to what was really a hard case, and which, we fear, is only one of a considerable number. A decent labourer, fifty-five years old, one of whose clubs had failed, and who had become superannuated in another, had to fall back on the parish doctor, to whose skill and kindness Mr. Goodwin testifies. But the rector ascertained that before the order for the doctor and medicines could be procured forty-one miles had to be travelled, of which the wife walked twenty-nine. These facts need no comment, and call attention loudly to a great evil. Even in London there are distances to be travelled which imply great hardship to poor and ill-tended people. It is not by such penances that unprincipled paupers are to be punished, and they are unworthy of a Christian country in the case of decent and injured people like the above labourer.

BRIGADE DEPOTS: MEDICAL OFFICERS.

A GENERAL ORDER just issued lays down that medical officers on half-pay, or otherwise retired, who are appointed to the medical charge of Brigade Depôts, are while so employed to wear the uniform of the Army Medical Department as laid down in the Dress Regulations, 1874 (amended by G.O. 3, 1880), according to their rank on retirement, or the honorary rank they now hold.

A MELANCHOLY and fatal accident to the Professor of Chemistry at the Grenoble Lyceum is reported. In the course of his lecture the professor, to moisten his mouth, took up a vessel which he supposed to contain *eau sucrée*, and drank so much of a mercurial solution that death ensued almost instantly.

AN official inquiry has been held by Captain Hildyard, Local Government Board inspector, as to the expediency of permitting the Town Council of Salisbury compulsorily to acquire land for the formation of a sewage farm, Mr. Jervoise, the owner of property adjoining the present drainage outfall having taken steps to prevent the flow of sewage into his river, under the Rivers Pollution Act. It was stated that the total cost of purchase and the erection of the necessary works will be £80,000. The inspector said he would report on the subject to the Local Government Board.

WE have pleasure in learning that the Justices of Surrey have recognised the important services of Dr. Brushfield, as superintendent of the Brookwood Asylum, by an addition to the salary of his office, which brings it up to £1000 a year. Dr. Brushfield opened the asylum, himself planned, and superintended the construction and furnishing of the new buildings added in 1875, and has conducted the institution for now fourteen years with credit to himself and advantage to the county.

THE Sunderland Local Board has called attention to the 252nd section of the Public Health Act, which would appear to require amendment. That section enacts that any legal proceedings for breach of building bye-laws must be taken within six months of the date of the committal of the offence. Of course many infringements of the law are not discovered until after the expiration of the time stated, so that the limitation referred to obviously cripples the powers of the Act for good.

THE outbreak of fever in Hare Island to which we referred last week has turned out to have been much exaggerated, and it appears on reliable authority that there were only twenty-nine cases affected, of which twenty-eight are under twelve years of age. Also that the disease is of a very mild type, and that there have been no additional cases for the past week. The origin of the epidemic cannot be traced.

SURGEON-MAJOR FRANCIS P. STAPLES has been compelled by ill-health to resign the appointment of Assistant Professor of Military Surgery at the Royal Victoria Hospital, Netley. He will be succeeded by Surgeon-Major Richard Tobin, who has officiated for the last six months.

THE "Watsonian Gold Medal, with five sovereigns," given annually by the Faculty of Physicians and Surgeons of Glasgow, to the gentleman who gains the highest average marks at the primary examinations, has been awarded this year to Mr. George W. Till, of Anderson's College.

MR. E. E. PHILLIPS, L.R.C.P. Edin., of Southend, has, we regret to learn, met with a serious accident, by the vehicle in which he was riding coming into collision with a cart. Mr. Phillips was thrown to the ground and sustained a fracture of the leg.

WE regret to report the death on the 17th January, at Lahore, of Surgeon-Major W. Eddowes, Indian Medical Department, in charge 35th Bengal Native Infantry, and for many years medical officer of the 2nd P. W. O. Ghoorkas.

ON the 19th inst., at the Freemasons' Tavern, Major Graham, the late Registrar-General, was presented with a life-size portrait of himself, executed by Mr. Frank Holl, A.R.A.

DURING the week ending February 28th there were three fresh outbreaks of pleuro-pneumonia in Essex. Of swine fever there were twenty-eight fresh cases in the county.

THE

INFECTIVE DISEASES KNOWN AS PYÆMIA, SEPTICÆMIA, AND PURULENT INFECTION.[1]

(Continued from p. 496.)

In the second part of this report we are presented with an elaborate analysis of what for want of a better term may be styled the natural history of septic diseases. Dealing with a large number of cases, the committee have aimed at interpreting their phenomena in the light afforded by experimental research. The idea is worked out so thoroughly as to leave little to be desired, and doubtless the plan laid down will be followed in the future. The more this portion of the report is studied the more clearly will its intrinsic value be appreciated. It is almost the first satisfactory attempt to clear away the obscurities which have shrouded the conditions of septicæmia and pyæmia; and difficult as the task must have been, it has been performed with a considerable measure of success, both in the direction of suggestion for further work, and in the actual settlement of doubtful points.

The opening paragraph of this section states that in it an attempt has been made to divide cases of septicæmia and pyæmia in the human subject into sharply defined groups corresponding in their clinical features and naked-eye morbid appearances to diseases of the same kind artificially produced in animals.

Septicæmia.—The various definitions that have been given from time to time are stated. Dr. Sanderson defines it as a constitutional disorder produced by the entrance into the blood of a quantity of septic material, as a disease of definite duration, in which the poison has no tendency to multiply in the organism. Davaine includes under it every case of death following the entrance of putrid substances into the blood without the formation of local centres of inflammation or suppuration. Koch all those cases of general infection from wounds in which there are no metastatic changes. Birch Hirschfeld regards it as a process of poisoning; Hueter—as a fever caused by the entrance into the circulation of products of putrefaction from local centres of decomposition; Billroth—as an acute general affection due to the taking up of various kinds of putrid substances into the blood; whilst the various authorities in this country, looking mainly to clinical characteristics do not recognise any sharp distinction between the various forms of blood-poisoning.

The experimental researches of Koch have, however, led the way to the recognition of two distinct forms of septicæmia. His experiments made on the mouse showed that when a sufficient dose of putrid blood was injected subcutaneously death rapidly followed in a few hours, as from a virulent poison. In such cases, he declares that no organisms arise in the blood, that the poison does not multiply, and that the disease cannot be transmitted by inoculation. He would style this form *septic intoxication*. But if a very small dose of the poison be administered, either no effects follow, or else the animal becomes weaker and dies at the end of forty to sixty hours, with swollen spleen, and fluidity of blood, which teems with organisms and is highly virulent. This is true *septic infection*, and finds its parallel in most cases of human septicæmia.

The conditions favourable to septic intoxication in the human subject are two—viz., a sufficient quantity of septic matter to furnish the fatal dose, and the presence of conditions favourable to rapid absorption. On the first head there are no reliable data; but it is surmised that the quantity required to be absorbed to produce rapid death from intoxication would be from one to two ounces of putrifying blood or serum. The means for its rapid absorption would be those afforded by raw surfaces before they are covered with healthy granulation tissue, and therefore acute septic intoxication would be favoured by large and irregular wounds, as those resulting from compound fractures; hollow wounds, as those left after the removal of tumours; wounds of joints, of large serous sacs, and large abscesses opening externally by an insufficient aperture. The accumulation of septic matter in the uterus after delivery; in the peritoneum after ovariotomy are favourable conditions. It is suggested that cases of death in the forty-eight hours after ovariotomy are probably due to this cause, which the adoption of antiseptic measures and drainage has almost eliminated.

The evidences of fatal acute septic intoxication in man would then be based upon the presence of a sufficient quantity of septic matter to yield the necessary dose of the poison; the invasion of the symptoms at a time when decomposition of the discharge has commenced, and before the surface of the wound is covered by granulations; the occurrence of high fever, followed by great depression; post-mortem appearances, indicating a tendency to congestion and capillary hæmorrhage; and probably also the absence of organisms from the blood during life, or immediately after death (Koch). Out of twenty-eight cases of septicæmia there was only presumptive evidence in two instances that the patient died from this form of blood-poisoning. The one was a case of tumour removed from below the lower jaw, and the cavity became distended with foul discharge, death taking place on the third day with dyspnœa, but no rigors, vomiting, or diarrhœa. The patient was a woman aged seventy-four, and the autopsy showed blood-staining of the endocardium, pale and softened liver and spleen. The other was a case of death on the third day, after an abscess of the patellar bursa had been opened. It seems probable that had cases of ovariotomy been included several other instances of true septic intoxication could have been gathered. Still, enough has been done to show that this is a definite form of blood-poisoning; and it seems to us to be one of the chief gains derived from this report to have clearly brought this into view.

Between this condition and that ordinarily known as septicæmia—viz., "septic infection without metastatic inflammation," there are marked contrasts. In "septic infection" the poison appears to multiply in the organism, and its effects are not directly proportional to the dose. Nothing is definitely known concerning the exact nature of the poison, but the researches of Koch (borne out to a certain extent by the committee) are in favour of the view of its dependence on the presence of a microscopic organism which multiplies in the blood, like the bacillus of splenic fever. The post-mortem appearances of fatal cases are chiefly those of congestion of internal organs, especially of the spleen, together with subserous and submucous petechiæ. The conditions indicative of it in man would be the occurrence of a wound of such a size as to render it impossible for the necessary fatal dose of septic matter to be found in it, the evidence of infection by inoculation from one patient to another, and the presence of large numbers of bacteria in the blood during life or immediately after death. In the case of large wounds it would be more or less complicated by septic intoxication. A minute dose of a very virulent poison found in decomposing discharges might cause death without any process of multiplication in the body of an affected animal; but in that case it would lose its virulence by repeated inoculation, the reverse of that which happens in true septic infection. Out of the twenty-eight cases there were only two in which the wounds were so small as to exclude the possibility of sufficient septic matter being present to yield a directly fatal dose, one being a case of death after ligature of a small epithelioma of the tongue, the other a case of dissection wound.

The period of invasion in all the cases of septic infection varied from two to twenty-two days. In all but two cases rigors were marked, and mostly repeated more than once; and the other most frequent symptoms include delirium, sweating, diarrhœa, dyspnœa, and icterus. The post-mortem appearances were chiefly congestion of the lungs, swelling of liver, spleen, and kidneys.

It is concluded that further investigation is necessary to ascertain whether any distinct separation can be made clinically as well as experimentally between septic intoxication and septic infection. Septic intoxication should be absolutely preventable, depending, as it does, upon the accumulation and decomposition of discharges in a wound of considerable size, whilst in septic infection a virulent poison is produced capable of transmission from patient to patient.

Pyæmia.—Here, again, the word has been used in different senses, and it is pointed out that, "although it would be much better if the word was entirely discarded and some other found in its place, it is very difficult to suggest any

[1] Report of the Committee appointed by the Pathological Society of London to investigate the nature and causes of those infectious diseases known as Pyæmia, Septicæmia, and Purulent Infection.

that would be free from objection," and the definition given by the College of Physicians in the nomenclature of diseases—viz., "a febrile affection resulting in the formation of abscesses in the viscera and other parts"—is sufficient to make clear the clinical meaning of the term.

After a brief sketch of the experimental researches on pyæmia, the report proceeds to an analysis of the cases collected by the committee. No fewer than ten groups have been made, and we can do no more in this place than give the headings of these classes, for the report is so concise and so full of detail as not to admit of analysis within the limits at our disposal. The first group includes—1. Cases of pyæmia, secondary to an open wound in which there is no evidence that the secondary inflammations are due to embolism, comprising (*a*) cases in which visceral abscesses are wanting, and (*b*) cases in which visceral abscesses were present, but no softening thrombus found at the primary seat of disease. 2. Cases in which venous thrombosis occurred apparently as one of the secondary affections. 3. Cases in which venous thrombosis and softening of thrombus occurred without giving rise to embolism or secondary abscesses. 4. Cases in which venous thrombosis and softening of the thrombus occurred, with secondary abscesses in other viscera, but not in the lungs. 5. Cases in which venous thrombosis with softening of thrombus occurred, with abscesses in the lungs and in other viscera. 6. Cases in which venous thrombosis and softening of the thrombus occurred, with embolic abscesses in the lungs only. 7. Cases of "pyæmia" secondary to infective periostitis. 8. Cases of "pyæmia" secondary to infective endocarditis. 9. Infective myositis. 10. Spontaneous septicæmia and pyæmia.

The conclusion arrived at from this minute and exhaustive analysis of cases of septicæmia and pyæmia is characterised by the true spirit of scientific caution. "It is quite certain that our knowledge is not yet sufficiently advanced to justify the assertion that all these various forms are only modifications of one disease. If such an assertion can ever be proved to be true it can only be when the exact nature of every form is perfectly understood—a time which we venture to predict is still far distant"; and it is, moreover, pointed out that instances of apparent merging of one form into another can be equally well explained on the supposition of "the coexistence of two or even more of the foregoing conditions in the same case."

THE DISPUTE AT GUY'S.

THE questions which have arisen out of the change of nursing system lately introduced at Guy's Hospital were submitted to a General Court of the Governors, which assembled for the purpose on February 23rd and on March 3rd, 10th, and 11th. The following letters addressed by Sir T. Dyke Acland to Lord Cottesloe will show in some degree how the discussion was conducted, how narrow were the questions submitted to the Court, and how, between the fear of offending their treasurer and increasing the feeling which had naturally arisen among the members of the staff, the decision arrived at was very much of the nature of a compromise. It does not, we confess, seem likely to produce more than a temporary calm, seeing that the office of treasurer is still virtually one of dictation, and that Sir T. Acland's sensible opinion "that no power can be allowed within the hospital to be independent, in the sense of being without superintendence, or check, or appeal," has been passed over by the Court. Subjoined are the letters.

Letter from Sir T. DYKE ACLAND *to* Lord COTTESLOE.

16, Suffolk-street, Pall Mall East, March 13, 1880.

Dear Lord Cottesloe,—I hope I may be acquitted of presumption if I respectfully submit to the treasurer and governors of Guy's Hospital, through you, as chairman of our meetings in the absence of the president, my view of our present position.

You opened our proceedings on the 3rd inst. with the wise advice that we should not dwell on the past, but look to the future well-being of the hospital, which we all desire. At the close of the verbal communications of the medical staff, of the medical superintendent, and the matron, I heard, with a feeling of deep disappointment, that before we could enter on any future arrangements we must first adjudicate on what has passed.

I ask with all respect a question suggested by an eminent governor, "What is the issue?" We have had before us a long letter full of complicated details, inferences as to the construction of rules, hypothetical forecasts of ulterior intentions; on the other hand, marginal rejoinders, of which I will only say that they include severe accusations as to the conduct and even the spirit of the staff. We have heard speeches eloquent and manly, if not always couched in language showing the discretion of practised advocates, exhibitions of strong feeling, and full personal explanations; there have not been wanting, moreover, hints of suggestions prompted by various persons not before us. Is it desirable that we should attempt to come to a formal adjudication on such data? Is it likely that we shall be unanimous in our verdict? Can we not rather follow your opening counsel, and act in a manner more befitting the president, treasurer, and governors of Guy's, as one undivided and even now unquestioned authority?

It must be obvious to the governors that there has been much misunderstanding, much incorrect information, much high colouring of insignificant details. It seems to me most undesirable to express a formal opinion as to the causes which have led to these unfortunate misconceptions. I think, however, that after eliminating these disturbing influences we may arrive at some tangible results which are not in dispute. And yet it would seem hardly expedient for the governors to state such results in an abstract form by way of reply to the written or verbal communications brought before them.

It seems to be admitted:—1. That the medical treatment of the patients is the first object of this hospital; the advancement of science, in conjunction with the practical teaching of medical students, the second; the training of nurses the third, subordinate to the two first, but indispensably required by modern opinion. 2. That the ward system, as defined by Sir W. Gull, with the assent of Dr. Pavy, may and ought to be continued. 3. That some central authority must be responsible for the supply and training of nurses. 4. That the orders of the medical staff as to any matter affecting the treatment of their patients, must be implicitly obeyed by the sisters and nurses, and not interfered with by anyone else. 5. That any complaints of the medical staff as to the nursing should receive immediate attention, without needlessly taking up their time. 6. That no power of control can be allowed within the hospital to be independent, in the sense of being without superintendence, or check, or appeal. 7. It is important to note that the matron, in reply to definite questions, disavowed the claim to make rules irrespective of the chief hospital authority, and that she expressed her willingness that any complaints about the nurses should, in the first instance, if so desired, be lodged with the medical superintendent.

These principles, reasonable as they may appear when stated, have been slowly wrung out of the facts by discussion. It may be excusable if, under the circumstances of the estrangement between the staff and the matron, they seemed to be called in question.

It seems to me that the staff were not only excusable for stating, but were under an obligation to illustrate, the grounds of their apprehensions. Having done as they were required to do, though possibly not always in cautious language, still with no apparent disrespect to the treasurer and governors, they took the wise course of closing their verbal communications by reading the well-considered letters of their spokesman, Dr. Pavy, and of Sir William Gull. Nor is it irrelevant to notice that a junior member of the staff (especially called upon) practically abandoned the ground of personal objection to the matron. The staff then left the whole matter unreservedly in the hands of the president, treasurer, and governors.

Under these circumstances I venture most respectfully but earnestly to repeat my suggestion, that we should pass on at once from anything like judicial investigation into the region of practical administration for the future, and, to speak more particularly—1. That opportunities be given to the staff to offer suggestions, either individually or through a small deputation. 2. That measures be taken without delay to establish free communication between the medical staff and the matron, either directly or through the medical superintendent. I do not venture to make any suggestion as to the official machinery by which these ends are to be

obtained, whether through the treasurer, who possesses our confidence, through the court of committees, or through a special committee.

I reserve for verbal statement on Wednesday some serious considerations as to the need for watchfulness with reference to the growth and future development of the changes recently introduced, beneficial as I believe them to be, if carried out with discretion and with the co-operation of all concerned.

I am, dear Lord Cottesloe, yours truly,
THOMAS DYKE ACLAND.

Extract from the Minutes of a General Court, held on 17th March, 1880:—

Read proceedings, dated February 25th, March 3rd, 10th, and 11th.

Resolutions:—

1. That the Court, while fully appreciating the anxiety of the medical staff in regard to the possible introduction of any changes likely to affect the well-being of the hospital, have great satisfaction in recording, as the result of the recent inquiry, that, in their opinion, no fundamental changes contrary to the rules of 1874 have been made, and that the matron has *not* exercised any authority in this respect without consultation with the treasurer and the superintendent. Certain changes of an administrative and domestic character have indeed been ordered. Some of these have been carried out, some have since been given up, and some are still under consideration.

2. That the measures now in progress for the improvement of the supply and training of nurses, if carried on with due discretion, with consideration of the wishes of the medical staff, and with their co-operation, will tend to promote the well-being of the patients, and to sustain both the hospital and the medical school in public estimation.

3. That the treasurer having already expressed his desire to take the opinion of the medical staff on such changes which seem still open to adjustment, the governors request the treasurer and court of committees—the appointed executive authority of the hospital—to invite the attendance of any of the medical staff to meet them and the superintendent and the matron, with a view to the recommendation of such administrative details as may best secure the efficiency and harmony of the internal arrangements of the hospital.

Ordered that a copy of the above be communicated to the medical staff.

ED. H. LUSHINGTON, Secretary.

Correspondence.

"Audi alteram partem."

IS INSANITY CAUSED BY "DRINK"?

To the Editor of THE LANCET.

SIR,—Dr. Mortimer-Granville's honest and comprehensive letter upon this important question which appeared in THE LANCET of February 21st—a question which is so misunderstood by many if not by most observers—suggests points worthy of consideration, and in writing this letter I am merely acting upon his advice when he says—"The relation between drink and insanity should be discussed on the basis of *records of practice* without prejudice or a preconceived opinion." In my asylum practice during a period of seven years, I had an unqualified opportunity of observing the relationship which exists between "insanity due to alcohol as a cause," and "alcoholism due to insanity as a cause." I may perhaps regret that I have no absolute statistics to guide me or to confirm my opinion, but I cannot say that I am sorry for this defect, as the greater part of the evidence of patients themselves in all matters relating to drink and insanity and other nervous affections is often worse than valueless, because in the majority of instances it is an utter perversion of truth. So that I am inclined to think that any careful, honest observer, of ordinary knowledge and grasp of character, is better able to form an opinion relative to cause and effect, if he applies himself thoroughly to elucidate facts by indirect methods of research, than by his taking the statements of patients as absolute.

In dealing with the causation of disease, I hold that we ought to consider, firstly, how far the diseased condition is due to the inherent or determined cause. Secondly, how far it is due to the exciting assignable or determining cause. We often see and read of men of large experience who write and speak of paraplegia caused by drink, or of epilepsy caused by drink, or of insanity caused by drink, or of paralysis caused by syphilis, and they even go so far as to raise *dicta* upon such presumptive evidence. I must say that, from a legal point of view, there may, perhaps, be some difficulty to substantiate a doctrine founded more or less upon what may be to a legal mind "an assumption," but to one skilled in clinical medicine it is nothing more than a rational and scientific, although probably a technical, deduction. The relationship between drink and insanity in reference to *cause* and *effect* may, I venture to conclude, be viewed in a somewhat similar light to the foregoing proposition, and, as psychologists and physicians, we must not fail to take into consideration the functional mental derangements and loss of physical power, which are caused by exhaustion and want of nutrition of the nervous centres, and which we find occasionally in the habitual drunkard, and frequently in the confirmed dipsomaniac.

My experience of the dipsomaniac is this—that he is a person of feeble, and in fact defective, nervous organisation. He may be a man of quick or even brilliant intellect, but withal he shows a feebleness of mind and instability of character which render him peculiarly sensitive and impressionable to his surroundings. He is impulsive, vacillating, and emotional, easily led, but not so easily driven. He has a passion and a craving for drink over which he has no control, and, like a ship at sea without a helm, he is driven about by every turn of tide and change of wind.

If drink were the great *cause* of insanity (which I do not believe), rather than the *effect* of an inherent enfeeblement of the mind (which I believe it to be), we ought to have, as Dr. Mortimer-Granville says, some more distinct and decided evidence of those pathological changes in the connective tissue of the brain which we find do arise from the effects of alcohol in other structures of the body. Yet I am not one of that class of observers who believe that a hard, cirrhosed liver or kidney must of necessity be due to alcohol, and my experience has guided me to this conclusion.

There are few observers, however, who will not readily admit that insanity and drink are in some cases so associated—I might almost say correlated—that it is almost impossible by any obtainable evidence to draw the line between cause and effect with any amount of accuracy.

The morbid craving for drink which is the marked characteristic of the dipsomaniac is undoubtedly in itself a species of insanity, and does in the course of time lead to confirmed insanity in some more objective form than that of dipsomania. But this morbid craving for drink which we find in the dipsomaniac is merely an instance of a defective and unstable mental process, and in all probability the would-be lunatic, if he had not originally a morbid craving for drink, would evince a passion equally as morbid in some other given direction; and it is on this account that we are being constantly reminded that the cause of So-and-so's insanity is drink, or masturbation, or impotency, when in fact these conditions are due to a weakness and inadequacy on the part of the nervous centres, which are inductive of morbid tendencies, and which become by a process of development the factors which eventually bring about that dissolution and disorganisation of those occult attributes of the mind through which a man becomes branded by the term "insane."

I am, Sir, yours obediently,
THOMAS STRETCH DOWSE.

Old Burlington-street, March, 1880.

COMPARATIVE PATHOLOGY.

To the Editor of THE LANCET.

SIR,—Kindly allow me space for a few comments on the remarks which have recently been made in THE LANCET, in reference to Comparative Pathology.

In the first place, I would call attention to the sweeping assertions so often made as to the dependence of some endemics and epidemics upon the existence of enzootics and epizootics; it is well known to all observant veterinary surgeons that epidemics and epizootics frequently co-exist, and it is equally well known that the latter may take prece-

dence, in point of time, of the former, or *vice versâ*; but that either are dependent upon the other for their origin is a gratuitous and hypothetical statement.

The existence of an epidemic or epizootic atmosphere—if I may be permitted the use of such an expression—is equally operative in the production of this class of diseases in both cases; in other words, the atmospheric influences which produce epidemics originate epizootics likewise.

In the second place, I would express my concurrence with the majority of the opinions recently advanced by Mr. Fleming in reference to variola, and would also call attention to some facts which have come under my notice at different times as to the prevalence, in England, of variola vaccina.

Some nine or ten years ago I saw cases of this disease in the neighbourhood of Blackburn, in which district it was well known. During the past eight years I have occasionally met with typical cases in the dairies of Edinburgh and Leith, and, with the exception of a few, all have passed through a regular course with but very slight apparent illness, or diminution of, or interference with, the lacteal secretion.

So little is the milk altered in its characters that it is a very rare occurrence for it to be kept separate from the daily yield. I have myself, on several occasions, examined such milk very carefully, microscopically, and otherwise, and in no instance have I been able to detect any material departure from the normal condition.

If small-pox were dependent upon variola vaccina for its existence we should expect that it would be unusually prevalent in Edinburgh and Leith, particularly amongst the families of cow-feeders. I believe I am justified in saying that such is not the case.

All the cows which suffer from variola vaccina in this neighbourhood are brought from North Lancashire (collected usually at Preston from the surrounding districts), from Cumberland, and Westmoreland, hence it should be an easy matter for medical men residing in these counties to institute inquiries as to the relative prevalence of small-pox and variola vaccina.

The remark made in your issue of February 28th, by Dr. H. D'O. Foote, to the effect that the animals which he saw suffering from V. vaccina were sickly, thin, and miserable, is probably to be explained by the treatment to which they had been subjected. I have observed in my book on "The Four Bovine Scourges," that when cows are cared for during the febrile stage of eczema epizootica the suffering is comparatively slight, but if they had been subjected to exposure or hardships in travelling the fever is aggravated and the subsequent results very grave. The same remarks apply equally to V. vaccina. As to the measles of pigs, I have frequently observed rubeolous affections in these animals running through a course almost identical with that of measles in the human subject, and have looked upon such cases as in every sense analogous to that exanthem.

Canine variola is often met with here. Lastly, in reference to the remarks recently made by Charcot as to the prior existence or otherwise of a localised pneumonia in pulmonary tubercular disease, I may observe that whatever may be the case in the human subject, we seldom find traces of a previous pneumonia in the tuberculous lungs of cattle.

I am, Sir, your obedient servant,

THOMAS WALLEY,

Principal, Royal Dick's Veterinary College, Edinburgh.

ANIMAL VACCINATION IN INDIA.

To the Editor of THE LANCET.

SIR,—In the note on "Animal Vaccination in India," which appeared in your issue of the 24th of January last, you appear to share the fears of the Punjab Hindoo Association in regard to the loss of caste which a Hindoo would incur in consequence of being vaccinated from lymph taken from the teats or udder of a heifer or cow. Permit me to observe, that if this matter may be judged by the practical experience of Bombay, the most populous city in India, these fears are perfectly groundless. Compulsory vaccination, and chiefly animal vaccination, has been established here for the last three years; the lymph used is mostly that from the udder of the heifer. Not only has objection to this lymph not been taken by the Hindoos, but animal vaccination is preferred to arm-to-arm vaccination. The people are quite pleased, because their vaccinated children are not usually required to contribute the lymph for extending the system. The Guzerathee portion of the Hindoo community of Bombay are quite as full of caste prejudices as any other Hindoos in British India, and yet they accept vaccination from the heifer as an unmixed blessing. The prejudices of the Punjab Hindoos appear to me to belong to Buddhism. When, several centuries ago, Brahminism regained the ascendancy in India and displaced Buddhism, some of the minor prejudices of the latter sect were necessarily transferred with the change; and this fear of heifer vaccination may be one of these prejudices. In Sanscrit literature the ordinary name for a guest is cow-killer; and no feast is said to be worthy of the name at which animal food was not provided.

Be this as it may, nothing has yet occurred to induce the Government of India to withhold a Compulsory Vaccination Act; nothing to prevent the free use of animal vaccination in any town or city in this country. Considering the vast benefits which a complete system of vaccination would confer upon India, it seems to me to be a matter of much regret that any educated public Hindoo body should engage itself in searching out fancied objections to animal vaccination at a time when the very life of the country requires that if any appeal is made to the people at all it should be an appeal to reason and common sense rather than to the spurious literature of an effete age. It is true in India that whenever Government have passed a well-considered law, which even the ignorant ryot can perceive will benefit all classes of the people, all prejudice has been at once forgotten, and a loyal obedience has been at once rendered. This has occurred in Bombay with the Compulsory Vaccination Act, and it will occur everywhere else in the country if Government has the courage of its opinion.

Whether arm-to-arm vaccination is to be preferred to animal vaccination is not now the question. Bombay experience is in favour of animal vaccination, especially amongst the poor with skins more or less diseased; but time is required before its protective influence can be accurately determined. If a Hindoo can be found weak-minded enough to object to animal vaccination, the remedy is at hand, and he may have his choice of human lymph, but such a man will have to meet a Hindoo vaccinator.

I trust, Sir, that the importance of this subject to the unvaccinated hundreds of thousands of the people of India will secure for my remarks a place in your widely-circulated journal.

Yours faithfully,

THOMAS BLANEY,

Bombay, Feb. 14th, 1880. Chairman Bombay Town Council.

TRANSVERSE DEPRESSIONS ON THE NAILS.

To the Editor of THE LANCET.

SIR,—The point in Dr. Thin's communication of the 20th inst. is of some clinical and medico-legal importance. Several observers have recorded cases to illustrate the dates of appearance and progress of these furrows. In particular, Dr. Wilks and Dr. Langdon Down have contributed facts bearing on this subject.[1] I have often observed the course of these depressions, and am inclined to agree with the recorded statements. I think, however, that there is a rather more rapid formation of nail than that of two complete growths in the year. Certainly, the rate of formation varies in different people, and at different seasons of the year. It is also influenced by the habits and occupation of the individual.

I am, Sir, your obedient servant,

DYCE DUCKWORTH, M.D.

Grafton-street, March 22nd.

THE RANK OF THE DIRECTOR-GENERAL OF THE ARMY MEDICAL DEPARTMENT.

To the Editor of THE LANCET.

SIR,—While the Director-General has been fighting and winning battles for the benefit of his brother officers, he has forgotten to claim justice for himself. I allude now to the very inferior relative rank granted this officer. As you are aware, every surgeon-general of the Army Medical Department ranks with a major-general in the army—a fair and just rule; but the Director-General of the whole department

[1] Vide Mr. Hutchinson's Lectures on Clinical Surgery, 1878, p. 144.

who has control over these officers, and their very appointment in his hands, has but the same relative rank of major-general.

Now, any day, if a surgeon-general low on the list was made Director-General A.M.D.—a by no means impossible occurrence,—we would see the strange sight of the Director-General being junior in the army to one of his own subordinate officers. It needs no knowledge of organisation to see that there is a mistake here.

The Director-General, on appointment, should have the relative rank of a Lieutenant-General; and on retirement he should, if he have done the State good service, get the further honorary rank of a full General in the army. In a short time the Director-General A.M.D. will have the great Native Army of India also under his control, and will be a most powerful officer.

I hope you will support the view that his rank is now inferior, and move the authorities for its being changed to its proper position. Yours, &c.,

March, 1880. I.V.R.C.

THE AFGHAN CAMPAIGN.

(From a Correspondent.)

THE fighting of the tribesmen round Cabul ceased on the 23rd December, and they withdrew to the Highlands of Kohistan and Ghuzni. The exposure endured by our men during the twelve days of fighting has told heavily upon their strength, and there are now more than 700 men, native, European, and followers, in hospital. Pneumonia is the prevalent disease, and is the cause of many deaths. The 92nd Regiment particularly has suffered from this disease.

The British Field Hospital is placed in an angle of the Sherpur Cantonment, and all the sick are in houses, and have plenty of fires, warm clothing, and food. Medicines too are ample, although in the fighting much medical and surgical equipment was lost when the forces fell back on Sherpur.

The Field Hospital system here, and along the Khyber Line, has worked well, although it is true that the labour it entails on the Field Hospital Staff is very heavy. There is, of course, one medical officer with each corps or battery, but their work is very light, and the general opinion seems to be that the younger officers should be placed in these billets. It seems impossible to exaggerate the fatigue and labours of the Field Hospital work, and it is quite certain it will always be hard work in any campaign. To march a Field Hospital full of sick, to choose the camping ground, pitch the camp, arrange for the feeding and nursing of the sick, the shelter and feeding of the staff and servants, the due care of the transport animals, and the management of the large following of doolie bearers, is trying work.

It cannot be forgotten either that the Medical Department has often an uphill labour to perform in carrying out its duties, owing to the want of due aid being given to it by other branches. Up to the late campaign of 1878 staff officers in India were not required to take any special notice of the hospitals—that is to say, the hospital as a unit in the *army* was not thought of, as each *regiment* had its own hospital, which pitched its camp in the rear of its battalion without any further question. Now, however, with this new system the Field Hospital as a unit takes its place in the line of the camp, and becomes a very perceptible item in the general camp.

One great advantage that exists this year is that all the medicines, instruments, purveyors' stores, and records of the hospital are carried on mules, in regular mule-boxes. Last year camels were used, and caused much trouble to the medical officers from their slowness and inability to keep pace with the marching column.

An order is needed directing that mules once issued to a Field Hospital for this duty should remain with it during the campaign, as now a battle has often to be fought with the Transport Department to prevent these mules being sent away at every halt in an encampment.

The Gandamak Field Hospital in its march to Cabul was completely carried on mules, and it kept its place behind the reserve ammunition throughout the whole of the march over very trying passes from 6000 to 7000 feet high without a single mishap. The order of march was as follows:—1. Medicines packed in mule gakdans, or paniers. 2. Puckals or water skins on mules, a most important requirement. 3. The office record. 4. Purveyors' stores—all packed in boxes except the blankets, which were carried in rolls on either side of mules, twenty-five on each mule. 5. Light mountain tents, two on each mule, well rolled up, and packed on the pack-saddles. 6. A mule carrying the cooking pots, rations for the day, or beef-tea ready to be heated. 7. A mule carrying camp colours, picks and shovels, on one side, and on the other the bed-pans, urinals, &c. Eighth in order: officers' baggage and mess equipment, then servants' baggage.

About seventy mules were needed for the hospital, but several of them carried grain and food for man and beast for several days. In addition to these mules thirteen camels were used, carrying hospital marquees of a larger size, but these often did not arrive on the ground till five or six hours after the light mule hospital following the column had come in.

When the campaign is over (and every one is heartily sick and tired of it) no doubt we shall have many papers on hospital working in the field, from the officers serving with them.

A secretary for the P.M.O. of each Division has been sanctioned in a kind of way. Last year THE LANCET drew attention to the want of such an officer, and doubtless the notice has done much towards getting even the present indefinite sanction of the appointment. It cannot be impressed enough on the authorities that the P.M.O. of a Division does need a secretary to assist in the routine of office duties.

The want of an Army Hospital Corps is very much felt also. The present ignorant followers, called Hospital Servants, are wretched creatures, and should give place to well-trained and disciplined men with good pay and pensions. The want of mule carriage for ailing or slightly wounded men is also an urgent matter, as the vast army of undisciplined doolie bearers need to be cut down very much. We all hope for great things when this war is over. I have not met one man, from the highest to the lowest, who does not hate Cabul and want to get away from it.

Cabul, 18th Jan. 1880.

New Invention.

THE "CARMICHAEL" PORTABLE BOOT-TREE.

THIS is a very simple, interesting, and useful invention. A boot is constructed of india-rubber cloth, or, rather, a cushion in the shape of a boot; and when inflated with air it acts as a boot-tree. The advantage is self-evident. When the tree-cushion is empty it can be folded to form a very small package, and when required for use it can be introduced into the boot, when only partially distended, without straining the leather, as happens when a wooden tree is employed. This latter point, though not apparently specified by the inventors, strikes us as of no small importance. To country medical practitioners, sporting men, officers on campaign, travellers generally, and careful people in particular, the apparatus will commend itself as meeting a long-felt need very efficiently. The agents are Messrs. W. Sparkes Hall & Co., 310, Regent-street, London.

Obituary.

THOMAS BELL, F.R.S., F.R.C.S., F.Z.S., F.L.S.

MR. THOMAS BELL, whose death we recorded last week, was the son of a surgeon in large practice for more than fifty years at Poole, in Dorsetshire. He was born on the 11th of October, 1792. He commenced his professional studies with his father. In 1813 he proceeded to London, and attended the practice of Guy's and St. Thomas's Hospitals in the time of Mr. Cline, Sir Astley Cooper, Mr. Travers, and other celebrated surgeons of that period. In 1815 he passed the College of Surgeons, and in 1817 began lecturing at Guy's Hospital on the Anatomy and Diseases of the Teeth. He was appointed at the same time Dental Surgeon to the Hospital. He also gave lectures on Comparative Anatomy in

the same school. Mr. Bell resided for many years in New Broad Street, City, and had a large and select practice as a dentist, and attained a very high position in the scientific world. In 1836 he was appointed Professor of Zoology in King's College, London, when he ceased his lectures on Comparative Anatomy at Guy's. He was elected a Fellow of the Royal Society in 1828, and in 1848 was chosen secretary of that body, and held the office till his election as President of the Linnæan Society in 1853. Mr. Bell became an Honorary Fellow of the Royal College of Surgeons in 1844, and was formerly one of the Board of Examiners in dental surgery at the College. Besides numerous contributions to the Transactions and Proceedings of the Zoological and Linnæan Societies, he was the author of a work on the "Anatomy and Diseases of the Teeth," "History of British Quadrupeds," "History of British Reptiles," Gilbert White's "Natural History of Selborne," published in 1876. He gave up practice some years back, and retired to the Wakes at Selborne, Gilbert White's house, which he had purchased from the family of the naturalist, and where he died on the 13th inst., in the eighty-eighth year of his age.

Medical News.

APOTHECARIES' HALL.—The following gentlemen passed their examination in the Science and Practice of Medicine, and received certificates to practise, on March 18th:—

Bartlett, Charles Richard, Halsey-street.
Clarke, William, Lamont, Ottawa, U.S.
Grindon, Francis James, Olney, Bucks.
Hepburn, John, Turnham-green.
Hormazdji, Robert Nesbit, Artesian-road.
Lecoq, Jules Arthur, Soho-square.

The following gentleman on the same day passed the Primary Professional Examination:—

Yeatman, John Walter, St. Barthol. Hosp.

COLLEGE OF PHYSICIANS IN IRELAND.—At the March examinations the following obtained the licences in Medicine and Midwifery of the College:—

MEDICINE.—Kyran Thomas Buggy, Charles Hayden Cox.
MIDWIFERY.—John Battersby, Kyran Thos. Buggy, Charles Hayden Cox, Arthur Richard Frederick Exham, Alexander Silcock.

SURGEON S. W. VASEY has been appointed to the *Seagull*.

THE Vestry of St. George's, Hanover-square, are about to undertake large works in wood-paving.

A FARMER of Street, Bridgwater, was fined £20 last week, at the Guildhall Police Court, for sending to market the carcases of sheep which had been suffering from fluke disease.

MR. FRANCIS WISE, of Cork, has presented £5000 to the Home for Protestant Incurables in that city. The Home requires about £3000 more to complete it, and, when finished, will, it is stated, be one of the finest institutions of the kind.

ADMIRALTY, March 23rd.—The undermentioned surgeons have been promoted to the rank of Staff Surgeon in Her Majesty's Fleet, with seniority of this date:—Solomon Kellett, James D'Arcy Harvey, Thomas O'Sullivan, M.D., Joseph Wood, M.D.

HYDROPHOBIA.—An inquest was held on a woman at Hulme, Manchester, on Monday, and a verdict of "Death from hydrophobia" was returned. It appeared that the deceased was bitten on the thumb by an injured cat on January 27th. The wound, which bled profusely, was bound up, and healed. On March 16th, however, symptoms of hydrophobia supervened, and the woman died on the 18th.

BRISTOL CHILDREN'S HOSPITAL.—The annual meeting of this charity was held on the 20th inst., the Mayor presiding. During the past year 326 little ones had been received as in-patients, of whom 262 had been cured or materially relieved, 13 had died, and 38 were still under treatment; the out-patients had numbered in all (women and children) 3033. The total income for the year was £1262, but there remained an adverse balance of £54 14s. The system of requiring some payment from out-patients is still maintained. No note of introduction to the benefits of the hospital is required.

BEQUESTS ETC. TO MEDICAL CHARITIES.—Miss Mary Woodward, of Sproughton, bequeathed £2000 to the East Suffolk and Ipswich Hospital, £1500 to the Essex Hall Asylum for Idiots at Colchester, £200 to the Essex and Colchester Hospital, £100 to the Suffolk Convalescent Hospital, and £50 to the Ipswich Lying-in Charity. Mr. Thomas Blackwell, of Soho-square, bequeathed £500 each to the Middlesex Hospital and the Westminster General Dispensary. The Brompton Hospital for Consumption has received £100 from "J. G. D." The Glasgow Royal Infirmary has received £100 under the will of Mr. Andrew Borland.

IRISH GRADUATES' ASSOCIATION.—The Irish Graduates' Association had their annual metropolitan dinner on St. Patrick's Day (Wednesday, 17th March), at the Holborn Restaurant, under the presidency of Mr. W. MacCormac, of St. Thomas's Hospital. Sixty-two members and guests sat down, and an excellent dinner was served. The following gentlemen were present:—Dr. Paget (president-elect), Dr. Balthazar Foster (treasurer), Drs. Daniell and Thompson (hon. secs.), Dr. Risdon Bennett, Mr. Wood, Mr. Erichsen, Mr. Jonathan Hutchinson, Dr. Greenhow, Mr. Mason, Dr. Ord, Dr. Milner Fothergill, Dr. Fancourt Barnes, Dr. Brodie Sewell, Dr. Tonge-Smith, Dr. Yeo, Rev. H. T. White, Dr. Wheeler, W. W. Mackeson, Q.C., Messrs. Wilson, Finlay, Mahr, Laistner, Wallace-Baines, H. Thompson, W. J. Frazer, Danaher, Vance, Wigmore, McBeath Davison, Butler, Croft-Oakes, Clements, Haddon, Hudson, Partridge, Murphy, Lough, Burton, McGrath, and many others. After dinner the usual list of toasts was given—"Our Rulers," "Our Guests," "Our Elders," "Ourselves." The latter was proposed by the President of the Royal College of Physicians of London in a very happy speech. The health of the President, Mr. MacCormac, was drunk with a bowl of Irish punch. A special selection of Irish music was played during dinner by the Holborn Band, and some exquisite violin and pianoforte recitals were given by Mr. Mahr and Mr. Laistner. Twenty-eight new members were elected. The company separated at a late hour, having passed a very pleasant evening.

BOOKS ETC. RECEIVED.

J. B. BAILLIÈRE ET FILS, Paris.
Le Cerveau. Par le Dr. C. Morel.
Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques. Tome XXVIII.
Le Régime de Pythagore d'après le Dr. Cocchi: De la Sobriété. Par L. Cornaro.
Cours de Thérapeutique. Par Adolphe Gubler.
L'Ecole de Salerne. Par Ch. Meaux Saint-Marc.

BAILLIÈRE, TINDALL, & COX, London.
On Consumption and its Treatment by the Hypophosphites. By Dr. J. C. Thorowgood.

C. L. BERMINGHAM & Co., New York.
The Hypodermic Injection of Morphia. By Dr. H. H. Kane.

J. & A. CHURCHILL, London.
The Elements of Indian Hygiene. By John C. Lucas, F.R.C.S.

DAWSON BROTHERS, Montreal.
Clinical and Pathological Reports of the Montreal General Hospital. Vol. I.

LONGMANS, GREEN, & Co., London.
Practical Chemistry. By W. A. Tilden, D.Sc. Lond., F.C.S.
The A B C of Philosophy. By T. Griffiths, A.M.

TRÜBNER & Co., London.
Physiology of Religion. Part I. By Henry Lee.
Manual of Operative Surgery. By Dr. Stephen Smith.

Address by Dr. F. N. Manning, Sydney.—The Answer of the New York Neurological Society to the Report of the Committee on Public Health relative to Lunatic Asylums.—The Medical Act (1858) Amendment Bill and Medical Reform. By Dr. W. E. Stevenson. (Baillière, Tindall, & Cox.)—The Victorian Review.—Journal de Médecine.—Australian Medical Journal.—The Sanitary Journal. (A. Macdougall, Glasgow.)—Boracic Acid a New Remedy in Eye Disease. By Dr. S. Theobald. (Trow's Printing Co., New York.)—The General Practitioner of Medicine, his Position and Education. By Dr. Bowles.—Transactions of the Cremation Society of England. (Smith, Elder, & Co.)—The Famous Victory. (Hamilton, Adams, & Co.)—Simplicity, Common Sense, and Intelligent Supervision in Sanitary Appliances. By P. Hinckes Bird. (C. L. Marsh & Co.)—Transactions of the Odontological Society of Great Britain. No. V. (Wyman & Sons.)—Good Words; Sunday Magazine. (Isbister & Co.)—A Plea for Cold Climates in the Treatment of Pulmonary Consumption. By Dr. Talbot Jones.

Medical Appointments.

Intimations for this column must be sent DIRECT *to the Office of* THE LANCET *before 9 o'clock on Thursday Morning, at the latest.*

ABBOTT, G., M.R.C.S.E., L.R.C.P.I., has been appointed Surgeon to the Central London Ophthalmic Hospital, vice A. Dunnage, deceased.

BRIDGFORD, C. T., L.K.Q.C.P.I., has been appointed Medical Officer to the Bray Dispensary District, vice Whistler, resigned.

BURMAN, C. C., L.R.C.P.Ed., has been appointed Medical Officer to the Workhouse and West District of the Belford Union, vice Miller, resigned.

CHEYNE, W. W., F.R.C.S., has been appointed Assistant-Surgeon and Demonstrator of Anatomy to King's College Hospital, vice Yeo, resigned.

COLEMAN, H. W., L.R.C.P., M.R.C.S.E., has been appointed Medical Officer and Public Vaccinator for the Upper and Lower Wootley District of the Bramley Poor-law Union.

DOYLE, C. W., M.B., C.M., has been appointed Medical Officer for the Fifth District of the Norwich Union.

FRAZER, A., M.D., has been appointed Medical Officer to the Drumkeeran District of the Manorhamilton Union, vice Nash, resigned.

GRAVES, T. W., M.R.C.S.E., L.S.A.L., has been appointed House-Surgeon to the Glamorganshire and Monmouthshire Infirmary, Cardiff, vice Vachell, resigned.

KING, T., L.S.A.L., M.R.C.S.E., of St. Mary's Hospital, has been appointed Assistant House-Surgeon to the Female Department of the London Lock Hospital and Asylum, Westbourne-green.

KIRKMAN, J. M., L.R.C.P.Ed., has been appointed Medical Officer to Districts 1 and 2 of the Cricklade and Wootton-Bassett Union, vice Parker, resigned.

LLOYD, T. L., L.R.C.P., has been appointed Medical Officer for the Fifth District of the Drayton Union, vice Prior, resigned.

MACKENZIE, A. G., L.R.C.P.Ed., L.R.C.S.Ed., has been appointed Surgeon to the *Severn*, in the Royal Mail Steam Packet Company's Service.

MAUDSLEY, Mr. H., has been appointed House-Surgeon to University College Hospital, vice W. H. Neale, M.B., M.R.C.S.E., &c.

MURRAY, Mr. H. M., has been appointed Ophthalmic Assistant to University College Hospital, vice R. S. Walton, M.R.C.S.E.

PATERSON, W. H., M.D., C.M., L.M., has been appointed Medical Officer for the Spittlegate District of the Grantham Union.

ROSS, R. A., M.R.C.S.E., L.S.A.L., has been appointed Medical Officer for the First District of the Alderbury Union.

SHARPLES, W., M.R.C.S.E., L.S.A.L., has been appointed Resident Surgeon to the North Cambridgeshire Cottage Hospital, Wisbech, vice Pearse, resigned.

SHEARMAN, Mr. P. E., has been appointed House-Surgeon to University College Hospital, vice W. Banks, M.R.C.S.E.

WHITE, J. R., M.B., L.R.C.S., has been appointed Medical Officer and Public Vaccinator to the Nos. 2 and 6 Districts of the Ongar Union.

WILLIAMS, D., M.B., B.Sc., has been appointed Physician's Assistant to University College Hospital, vice B. Pollard, M.R.C.S.E.

WOODHOUSE, W., M.R.C.S.E., L.S.A.L., has been appointed Medical Officer for the First District of the Norwich Union.

Births, Marriages, and Deaths.

BIRTHS.

RIDGE.—On the 19th inst., at Carlton House, Enfield, the wife of J. J. Ridge, M.D., of a son.

WINCKWORTH.—On the 16th inst., at Shefford, Beds, the wife of Charles Edward Winckworth, L.R.C.P.L. &c., of a daughter.

MARRIAGES.

BEHREND—WAGG.—On the 18th inst., at Bryanston-square (the residence of the bride's brother), Henry Behrend, M.R.C.P., of Norfolk-crescent, Hyde-park, to Marian, daughter of the late John Wagg, Esq., of Gloucester-place, Portman-square.

IRVINE—CORRIE.—On the 20th inst., at Pawley, Henley-on-Thames, Gerard James Irvine, Surgeon, Royal Navy, eldest surviving son of the late Gerard Irvine, Esq., M.D., of Bungalow, Irvinestown, County Fermanagh, Ireland, to Henrietta Frances Corrie, youngest daughter of the late William Byrom Corrie, Esq.

DEATHS.

MACKAY.—On the 17th inst., at Elphinstone-terrace, Hastings, Caroline Frances (Fannie), second daughter of the late George Mackay, M.D., R.N., Inspector-General of Hospitals and Fleets, and Honorary Surgeon to the Queen.

SYKES.—On the 17th inst., at Queen's-road, Dalston, of pneumonia, George Sykes, M.D., aged 49.

THOMSON.—On the 20th inst., at Berkeley-square, Bristol, Charles Edmunds Thomson, F.R.C.S., aged 73.

N.B.—*A fee of 1s. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

Notes, Short Comments, and Answers to Correspondents.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Local papers containing reports or news-paragraphs should be marked.

Letters, whether intended for publication or private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

Lectures, original articles, and reports should be written on one side only of the paper.

We cannot prescribe, or recommend practitioners.

All communications relating to the editorial business of the journal must be addressed "To the Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *to be addressed "To the Publisher."*

SCIENCE TEACHING IN BOARD SCHOOLS.

AT a recent meeting of the Birmingham School Board (says the *Local Government Chronicle*) the Education Committee presented a report, recommending that a demonstrator be appointed, at a commencing salary of £250, for giving systematic elementary science teaching in the Board Schools. Following the plan which has been adopted by the Liverpool School Board, the Committee proposed that his duties should consist of—first, the organisation of the instruction in elementary science in the schools, the performance of the experiments, and the giving of oral instruction to standards 4 and upwards of certain boys' and girls' schools; secondly, to teach classes of pupil-teachers to be established in connexion with the Science and Art Department, in the evenings or on Saturdays. The subjects to be taken will be, in the schools, mechanics for boys, and domestic economy for girls; and for the pupil-teachers (males) two or more of the following subjects:—Acoustics, light, heat, magnetism, and electricity; (females) animal physiology. The proposal was carried, after some discussion, by eight votes to five.

Volunteer.—The forage allowance for each horse in cavalry regiments is 12 lb. of hay, 10 lb. of oats, and 9 lb. of straw per diem.

BLEEDING IN PUERPERAL CONVULSIONS.

To the Editor of THE LANCET.

SIR,—A few days since I was called to see Mrs. Y——, who was expecting to be confined for the fourth time. She was about thirty years of age, of short build, thick neck, and florid complexion. At her first confinement she had convulsions; but at that time the os and soft parts were well dilated, and the attending doctor was able to turn and deliver a dead child, after which she only had two convulsions, but remained insensible for five days. When I saw her at this time she was in bed, complaining of severe pains in her head and slight ones in her back. On making an examination, I found the presentation normal, but the parts were not at all dilated. I gave her a mixture of chloral and bromide, ten grains of each, and she slept comfortably, but on waking complained that she could not see she had no true labour pains. She shortly went to sleep again, and awoke in a violent convulsion, with loud stertorous breathing, pupils insensible to light, and dilated. I made an examination, and found the os not dilated larger than a shilling, so it seemed impracticable to turn and deliver. Under these circumstances I sent for assistance, and administered chloroform to try and control the spasms, which I partly succeeded in doing till Dr. Sinnit, of Granville, arrived, which was probably in about three hours. We then bled in the arm, taking away an ordinary basinful of blood, and the spasms ceased, breathing becoming more natural, but pupils still insensible to light. I then applied a blister at the nape of the neck, and administered a powder of quinine and calomel. This was about five o'clock on the second day—i.e., I had been there since the previous evening at eleven o'clock. We continued to administer these powders at intervals of two hours, and at about half-past nine the child, a female, was born naturally, but was dead. A dose of castor oil was then given, and the bowels moved about eleven in the morning. I afterwards administered nitre and digitalis every three hours. The patient did not recover consciousness till twelve o'clock on the following night. She afterwards progressed as favourably as in any ordinary case.

What I wish to know is whether the treatment was correct, and whether anything else could have been done in the place of general bloodletting. Perhaps some gentleman who has had a similar case will kindly inform me in your columns how he treated it, and oblige,

Yours respectfully,

W. L. KING, M.D., L.F.P.S.G., &c.

Fredonia, Licking County, Ohio, March 1st, 1880.

STATISTICAL SOCIETY.

AT the usual monthly meeting on Tuesday, the 16th inst., Sir Rawson W. Rawson, C.B., K.C.M.G., in the chair, two papers were read: the first by Dr. T. Graham Balfour, F.R.S., "On Vital Statistics of Cavalry Horses," in which he showed that the subject has received much more attention in France than in this country. In 1843, owing to the heavy losses by glanders sustained by the army during the preceding ten years, a permanent Commission, presided over by the celebrated physiologist Magendie, was appointed, whose duty was to be the examination of all questions relating to the health and preservation of the horses of the army. The Commission established statistical returns to be furnished annually by the veterinary surgeons of the army, and was uthorised by the War Minister to publish an annual volume giving the results of these returns, and any information it might judge eserving of publication relating to the health of the horses. The rst of these reports was brought out in 1847, and twenty volumes had bee published prior to the breaking out of the Franco-German war. The mortality of the horses in the French army during the thirty years 1837–66 averaged 58 per 1000 of the strength; ranging between 125 in 1841, and 26 in 1862; and the proportion "cast" was 80 per 1000, ranging between 135 in 1849, and 47 in 1855. The total loss amounted to nearly 14 per cent. annually. Dividing the thirty years into quinquennial periods, the mortality shows a marked progressive reduction, attributable to the improvements introduced by the Commission, the deaths in the last five years having been only 27·5 per 1000 as against 115 in the first. The reduction did not extend to the casting, which was higher in the last two than in the first two periods. The importance of these results is shown by the fact that a saving of upwards of £90,000 a year was effected in the amount required for the purchase of horses for the army during the last five years compared with what would have been necessary had the ratio of deaths and casting been the same as during the first five years. The influence of sex is shown in a slightly higher rate of mortality, but lower of casting among mares than horses. The mortality by ages shows the rate to decrease steadily till 11 years of age, when the minimum is reached. The casting, as might have been expected, increases steadily with advancing years. The disease which causes the highest rate of mortality is glanders, and next to it stands inflammation of the lungs and pleura. The highest death-rate by glanders occurs at the age of 6, after which it steadily decreases; the highest rate of deaths by lung disease is among the 4 year old horses. The chief cause of casting is legs worn out, which accounts for two-fifths of the whole. The mortality has been highest in the Engineer Train and Transport Corps, and lowest in the Imperial Guard, the latter being, in the opinion of the author, to a considerable extent owing to the Guard being mounted on better bred horses than the line. The admission of cases into the infirmaries averaged more than 50 per cent. annually, about one-fourth of them being on account of wounds and injuries. The influence of the seasons on the sickness is shown by a table of the admissions in each quarter of the year by the chief classes of diseases; they are lowest in the fourth, and highest in the second quarter. The returns, unfortunately, do not show the number constantly non-effective—a point of great importance. The information respecting the British Cavalry is very meagre. The deaths, on the average of eighteen years, 1861–78, were 21·07 per 1000, ranging between 16·9 in 1864, and 28·1 in 1871. The number cast averaged 98 per 1000, and ranged between 76 in 1871, and 156 in 1873. The mortality was lowest in the Household Cavalry, and highest in the Cavalry of the Line; while the casting was lowest in the Royal Engineers, and highest in the Military Train and Army Service Corps, the Household Cavalry furnishing the next highest proportion. There is no information available as to the causes of death and casting. The author concluded by calling attention to the very valuable results obtained by the statistical method of investigation as applied to the horses of the army in France, and suggested that a similar course should be followed in our service, more especially with a view to test the actual value, as a measure of efficiency and economy, of the importation into our cavalry of horses purchased in Hungary. He also pointed out the importance, as shown by the French returns, of stamping out glanders by killing all infected horses as soon as the nature of the disease is verified.

Mr. H. L. Harris.—The preparation (or something) may be procured of R. M'Cord, 1, Australian-avenue, E.C.

A LARGE CHILD.

To the Editor of THE LANCET.

SIR,—On the 15th instant Mrs. G——, aged thirty-five, wife of a butcher, was delivered of a fœtus which weighed 12½ lb. It was her ninth confinement, and she was assisted instrumentally. The circumference of the child's head was 12½ in.; chest, 19 in.; whilst in height it was found to be 23 in. The mother did well. This may be of some interest to your readers.

Yours &c.,

Manchester, March, 1880. P. I. L.

A PERIL AT HOME.

A DANGER which has more than once been pointed out was illustrated in the town of Thaxted, in Essex, a few days ago. A gentleman sitting in the coffee-room of an hotel observed smoke rising from the surface of the uncovered table on the side opposite to where he sat. The table was standing directly facing and under the front window, through which the sun's rays were passing at the time. On examining the spot whence the smoke rose, the surface of the wood was seen to be charred as by fire. A decanter filled with water was on the table in a direct line between the charred spot and the window. A piece of paper was laid on the spot after all trace of fire on the table was removed, and it immediately ignited. Lucifer matches were laid down with the same result. Thus the decanter of water appears to have acted as a lens to concentrate the sun's rays with a power sufficient to produce combustion.

Mr. Simeon Snell.—The paper will appear in an early number.

TOBACCO-SMOKING.

To the Editor of THE LANCET.

SIR,—In the discussion upon tobacco which has been going on in your pages lately, the question, as far as I have seen, has not been raised in connexion with the effect, if any, that smoking has upon the teeth. It has been usual, when the necessity arises for obtaining data upon a subject which is little known, to proceed at once to organise some statistics, and from these to draw a general conclusion; but obviously in the case before us, where so many causes are at work to produce the same result—namely, decay of the teeth,—any statistics drawn from those men who smoke and from those who do not would be of rather less value than statistics usually are. There is, however, one point which admits at any rate of some latitude for expressing an individual opinion, and that is whether or not tobacco-smoking augments the process of decay in a tooth in which decay has already commenced. A few observations upon this subject have inclined me to the belief that tobacco-smoking *has* this effect. Smoking may be innocuous to teeth already healthy; but let decay once appear, and its progress will be accelerated by the presence of the smoke. And to what may we assign the cause of this, assuming this suspicion to be correct? It seems to me that it is to be found in the chemical properties of the smoke—the combustion processes liberating from the tobacco the elements which are productive of the mischief. The irritating properties of tobacco-smoke are proved by the effect which follows its application to the conjunctiva. It is reasonable, therefore, to conclude that some such effect occurs upon the teeth in which decay has commenced. But how is it with a certain section of the community, one of whose pleasures in life is to chew tobacco? Judging only from what I have seen, I am bound to admit that, beyond blackening the teeth, it does not seem that the practice followed by these men is harmful as far as the teeth are concerned. I have looked into the mouths of many subjects upon the post-mortem table, the majority of them being seamen, whose propensity for chewing is well known, and frequently I have found the teeth sound and good, but, of course, intensely blackened.

Yours faithfully,

Paris, March 16th, 1880. M.R.C.S.

POST-MORTEM APPEARANCES IN A CASE OF STARVATION.

THE following description by Dr. Snowball of the appearances found thirty hours after death in a child five weeks old brought to the Children's Hospital, Melbourne, with a history of neglect and improper feeding, is given in the *Australian Medical Journal*:—"Brain pale, and of such thin consistence that on opening the dura mater it ran out like a pasty fluid. Lungs pale, but healthy. Heart: walls soft and flabby; no blood in cavities. Liver engorged with blood; gall-bladder *quite empty*; coats thin and pale. Coats of stomach and intestines greatly attenuated and pale; small quantity of fæces in lower gut. Kidneys pale, but healthy. All the internal fat absorbed."

Mr. T. L. Lees.—Cases are reported in THE LANCET of Feb. 15th and March 1st, 1873. We have no recollection of others.

SWELLING AND TENDERNESS OF THE LYMPHATIC GLANDS IN RÖTHELN (GERMAN MEASLES).

To the Editor of THE LANCET.

SIR,—I have been interested in Dr. Dyce Duckworth's account of rötheln in THE LANCET of the 13th inst., as, so far as I had noticed, he was the first English describer of the inflamed lymphatic glands that occur in the disease. In a considerable epidemic of the complaint that occurred here about seventeen years ago, this feature was not noticed, although in other respects the novelty of the complaint led to its being discussed one evening at our local Medical Society. During last year and this year the disease has revisited us, and now the tenderness and (moderate) swelling of the cervical and sub-occipital glands have been prominent characters, and yet not universally so, as in about one-fourth of the cases that I have seen they have not been detectable. A careful inquiry about the incubation has led to sixteen days being considered the usual period; but in some instances it has seemed to extend to eighteen, and in others even to twenty days.

I remain, Sir, yours &c.,

Brighton, March 15th, 1880. G. F. HODGSON.

ADVICE TO "A STRUGGLER."

A Struggler asks us how he can best introduce himself in a new neighbourhood, moving from an old one a little distance off, where he has achieved an income of £350 a year, including the proceeds of a district appointment; and he suggests the issue of circulars, intimating his change of address and his hours of consultation. Our correspondent says that he does not wish to do anything *infra dig.* Our advice would be not to do anything in the new neighbourhood and in the larger house, which would not even be dignified in the old neighbourhood, and certainly to leave the issue of circulars to the neighbouring tradesmen. The arrangements for utilising the larger house which our correspondent mentions are reasonable enough.

Mr. H. S. Reynolds should put his views into the form of an advertisement. He would probably soon find a purchaser for his practice.

FRACTURE OF SKULL; RECOVERY.

To the Editor of THE LANCET.

SIR,—I have the pleasure of forwarding to you notes of a case of rare and extraordinary injury to the skull without damage to the brain.

On October 17th, at 5 P.M., Manuel, a Portuguese boy, aged fifteen, was thrown from a horse, and dragged by the stirrup till his head struck against an iron pipe, when the strap parted. The horse ran off. The boy jumped up and started after him, but was caught and restrained by the bystanders. He was brought here immediately, quite sensible; clean-cut wound on right side of the head; a piece of skull, attached by a little bit of skin, hanging from the wound; wound five inches long, beginning an inch above the ear, running first straight up, and then backwards; dura mater apparently uninjured over a large uncovered space; slight bleeding only from the cut edges of the scalp. Some faintness, but no paralysis or other affection of the general or special senses. I attempted to replace the bone, but found it impossible. Skin brought together with sutures, and dressed with carbolised water. The patient had a good night, with very slight wandering of mind. The piece of skull was peeled, or rather dug out, clean off the dura mater. It is nearly a parallelogram, three and one-eighth inches from front to back, two and one-eighth vertically; very little periosteum on the outside; the inside marked by the groove of the middle meningeal artery.

Oct. 18th.—11 A.M.: Pulse 115; temperature 102°; complains only of soreness; mind quite clear.

19th.—Noon: Pulse 114; temperature 104°.

20th.—Noon: Pulse 120; temperature 104°. Wound dressed.

21st.—Noon; Pulse 125; temperature 107°. Wound dressed.

22nd.—Noon: Pulse 120; temperature 107°. Considerable suppuration; matter bogging below. I passed in a director, and made a counter-opening. Much pus evacuated.

23rd.—Pulse 122; temperature 107°. A strip of bare skull visible along the front edge of the wound; much discharge; erysipelatous swelling of right ear and face.

Till 26th.—Much the same; pulse 116; temperature 105°.

27th.—Pulse 84; temperature 100°. Still much discharge; swelling of face and ear has disappeared; night restless; appetite poor; can help himself in every way.

30th.—Noon: Pulse 97; temperature 103°; swelling appears in the upper lip and left ear.

31st.—Swelling in left ear alone; he is much stronger; pulse 96; temperature 101°.

Nov. 3rd.—Very little discharge; pulse and temperature normal.

4th.—Somewhat fallen off, though the appetite is now good; right ear has swollen again; pulse 88; temperature 105°.

5th.—Ear is well.

8th.—Doing well; pulse 85; temperature 100·5°. From this date he was well, except for the wound, which is now an inch and a half long, granulating healthily at the edges; almost no discharge. All the time the dressing has been carbolised water. He is very bright and happy.

16th.—A scale of bone came away, that which is noticed in report of Oct. 23rd.

24th.—Yesterday another scale of bone came away. To-day the granulations have closed over. The wound is nearly healed. The boy otherwise well.

Remarks.—The injury is a very remarkable one. It is hard to see how it could be artificially imitated. Could a good mechanic knock out a piece of skull, three by two inches, with clean rectangular edges, through a single cut in the scalp, under the condition that the brain is to suffer no injury?

I am, Sir, yours faithfully,

ROBERT M'KERRON, M.R.C.S., &c.,
Surgeon to the Queen's Hospital.

Queen's Hospital, Honolulu, Jan. 12th, 1880.

MEDICAL CHARGES.

To the Editor of THE LANCET.

SIR,—As a general practitioner, my account for the attendance and service rendered, as detailed by "Extra-urban Practitioner," would have been delivered as follows:—"To medical attendance, July 20th to 24th inclusive, £2 2s." and in my ledger a note thus: "Charge six visits, at 7s."

Your obedient servant,

March 22nd, 1880. J. W.

P.S.—My practice is extra-suburban, and among the class indicated my account is seldom or never questioned.

Traveller.—Our correspondent must be a much better judge of his question than we or any other person could be. There is no rule or tariff for such services. They should be the subject of an agreement beforehand. In any case the remuneration of the medical man should turn upon a number of social, financial, and professional considerations, of which no one but himself can be a judge.

IS JAGGARY AN ANTISCORBUTIC?

To the Editor of THE LANCET.

SIR,—Your last issue contains an anonymous communication under the above heading, offering some criticisms on my letter "On the Preventive and Remedial Effects of Molasses in Scurvy and Diseases connected with Chronic Starvation," which appeared in THE LANCET of the 21st of January last. To this communication it is difficult to reply in an edifying or useful manner. It is not necessary to occupy much of your space, but with your permission I will draw attention to the fallacy of a few of your correspondent's most prominent remarks.

The whole second paragraph, which occupies about half his letter, is devoted to commentaries on the causation of scurvy, which have so little bearing on the influence of jaggary or any other substance on that disease that I refer to it only to illustrate the illogical and incomprehensible manner in which he uses and draws inferences from my statements. After referring, in my letter, to the large experience of practical men as to the beneficial effects of molasses in scurvy on board ship, I proceed, by way of contrast and illustration, to say, in a general way, that the disease in India "was due to causes far removed from sea influences and salt provisions." Now, Sir, if "Famine Wallah" be not a disciple of Messieurs De Talleyrand and De Retz, who are credited with believing that the use of language is to conceal our thoughts, I submit that it surpasses the bounds of imagination how he can assume that I am a believer in what he is pleased to call "the exploded theory that scurvy is *per se* due to sea influence and salt provisions." The fact is, though I believe both, under certain circumstances, to be fruitful sources of scurvy, I am not aware that I have ever until now said so.

Again, your correspondent asks why do I say that the cattle died from want of salt? My answer is, because it is true; which, however, does not preclude the possibility of their dying from other causes. For example, if I assert that children die from small-pox, I have a right to expect that no sane person will run away with the idea that it is my belief that they may not also die from other diseases, such as measles or scarlatina.

His third paragraph concerns itself solely with a triple division of scurvy, which, as it is beside the question at issue, I have nothing to say.

In the fourth paragraph it is asserted, on what grounds I cannot imagine, that my experiments are advanced to prove "the preventive and remedial effects of jaggary in scurvy." With reference to this I have only to say that I made no experiments with such an object. My experiments were made with a view of testing the "powerful assimilation-assisting properties of jaggary," to which I have stated I attribute the greatest importance. I have not even hinted that the men experimented on suffered from scurvy. However, as he appears anxious to be informed "that if consonant with increase of weight I expect scorbutic symptoms to disappear," I say yes, at least in the vast majority of famine cases, and not only as regards scurvy, but most other diseases as well; and further, without such increase of weight, few indeed would remain long to be troubled with scurvy or other ills to which flesh is heir.

Now, Sir, one word as to the real question under discussion, and I have done. As I have been asked a large number of not very pertinent questions, and in not the most agreeable style, I should like in return to ask "A Madras Famine-Wallah" whether he has had any experience of molasses or jaggary either in his own case or that of others? For the present, at all events, as he has not brought forth any, I am forced to the contrary conclusion, and must therefore, however reluctantly, consider his opinions as practically worthless. Moreover, from the testimony of the New England ship captains as to the efficacy of molasses in scurvy, from the evidence adduced in its favour by Dr. Buzzard in "Reynolds's Medicine" during the civil war in America, where it was used with "decided benefit," and from my own experience and that of others in India, I have little hesitation in asserting that, had your correspondent performed the experiments he considers so conclusive, or given it a trial on himself, I am pretty confident he would not have been under the necessity of subscribing himself a "Famine-Wallah."

Yours faithfully,

Connaught-square, March 22nd, 1880. D. H. CULLIMORE.

RETRACTION OF THE TONGUE.

MR. H. MEYMOTT, of Ludlow, submits the following case as containing features of interest:—

William B——, aged twenty-five, labourer, had been suffering from bronchial irritation, and whilst at work on the 28th February suddenly lost all control over the muscular action of the tongue. I did not see him until several hours had elapsed. He could neither speak nor swallow. The tongue was much swollen, and he could not protrude it in the slightest degree. After several minutes' digital manipulation, and urging his own efforts to protrude it, I succeeded in bringing it out a little distance from the teeth, when it slipped back again. A second effort was more successful, and, to his immense relief, he could both speak and swallow. It remained in place, but was much swollen, and a large quantity of saliva was secreted. I gave him an astringent gargle, and he rapidly recovered.

Dr. Maurice G. Evans.—Mr. Keetley described an apparatus of the kind in THE LANCET for Jan. 8th, 1876. Or application may be made to the Secretary of the St. John's Ambulance Association.

Mr. R. S. Hudson.—The name will be inserted in the official list.

RARE CASE OF RETARDED LABOUR.

To the Editor of THE LANCET.

SIR,—The following case of retarded labour appears to me worthy of being placed on record :—

Mrs. W——, aged thirty-six, third confinement, who was delivered of twins in her previous labour, sent for me on October 28th, 1879, at 6.30 P.M. I found that she had been suffering slight pains since 8 A.M. that morning, when the waters had broken. I examined and found the os dilated to about the size of a shilling; had had no pains for more than an hour. I left her, and called again about 9 P.M., and found everything in the same state. I left, and she sent for me about 1 A.M. on the 29th, having had violent pains for about an hour. The os was now fully dilated, and the head descended slightly with every pain, but receded when it was over. Pains more or less violent every ten minutes. I waited for two or three hours, and then applied Simpson's long forceps, which slipped on my using some force. I reapplied them with the same result. I then obtained the assistance of Mr. Reckitt, who also tried the forceps with a similar result. Mr. R. then administered chloroform. I passed my hand into the uterus, and found the following condition of things :—A tight contraction of the internal os, or the lower fibres of the uterus, around the neck of the child, and compressing the cord, a loop of which had slipped down. The child, of course, was dead. I gradually inserted my hand further into the uterus and turned the child. I had some difficulty in extracting the head, which had been again grasped by the os internum, but eventually I overcame that difficulty by perforating, and so relieved my patient, who had been five or six hours in strong labour. She made a rapid recovery.

There is an account of a somewhat similar case read before the Edinburgh Obstetrical Society by Dr. Angus M'Donald, and published in the *Obstetrical Journal* for September, 1879. Dr. M'Donald remarked that his was an unusual case, there being very few recorded. I, therefore, thought this might be worth insertion.

I may add that had I known what was the cause of retardation, I should first have tried the effect of a full dose of opium; but when I had my hand in the uterus, I thought the wisest thing was to turn and deliver the woman, who was becoming exhausted.

Your obedient servant,

Newark-on-Trent, March, 1880. H. O. LUCAS, M.R.C.S.

COMMUNICATIONS, LETTERS, &c., have been received from—Sir J. Fayrer; Dr. Gowers, London; Dr. Dyce Duckworth, London; Dr. Greenfield, London; Professor Clay, Birmingham; Mr. J. H. Cameron, Toronto; Mr. Thatcher, London; Mr. Gore, Bath; Dr. Thudichum, London; Mr. Cullimore, London; Mr. Hudson, Redruth; Mr. Snell, Sheffield; Mr. Harris, London; Mr. E. Firth, Edinburgh; Mr. Craigie, London; Dr. M. G. Evans, Cardiff; Mr. Aikman, Guernsey; Mr. Epstein, London; Mr. Richard, Dumbarton; Dr. J. Thomson, Leamington; Dr. Hardwicke, Sheffield; Mr. Boyle, Hailsham; Mr. Adamthwaite; Mr. Coleman, Cardiff; Mr. Coombe, Toondla; Mr. Paramore, London; Messrs. Fell and Bryant; Dr. Cameron, M.P.; Mr. Reynolds, Natal; Surgeon Lewtas; Mr. C. Bader, London; Mr. Richardson, Newhaven; Mr. G. A. Wright, Manchester; Dr. Brett, Watford; Mr. Murphy, London; Mr. Gamgee, Birmingham; Mr. Field, London; Dr. Fussell, Brighton; Mr. Myers, Nottingham; Mr. M. Baker, London; Messrs. Mottershead and Co., Manchester; Mr. Fosbroke, Birmingham; Mr. Ellis, Newcastle; Dr. Struthers, Leith; Mr. Mann, Manchester; Mr. Dovell, Lundy Island; Mr. Warren, London; Mr. Abraham, London; Mr. Hyrons, Glasgow; Mr. Cottle, London; Dr. Russell, Glasgow; Dr. Caird, Edinburgh; Mr. Lean, Cardiff; Mr. Whalley, Edinburgh; Dr. Thursfield, Shrewsbury; Dr. Cuolahan; Dr. Slorach, Bandon; Mrs. Whitworth, Birkenhead; Messrs. Richardson and Co., Leicester; Messrs. Maclachlan and Co., Edinburgh; Mr. Howe, Birmingham; Mr. Collins, London; Mr. Fawcett, Bradford; Messrs. Edmonson and Co., Skipton; Messrs. Garwood, York; Mrs. Stratton, Newport, Isle of Wight; Messrs. Arnold and Sons, London; Messrs. Leader and Sons, Sheffield; Mr. Hochheimer, Brighton; J. W.; I. V. R. C.; 420; Volunteer; Medicus, Norfolk; Mrs. H., Manchester; A Fourteen Years' Total Abstainer; D. A.; &c. &c.

LETTERS, *each with enclosure*, are also acknowledged from—Mr. Fulton, Toronto; Mr. Passmore, Brixton; Mr. Sullivan, Leicester; Mr. Lewis, Hay; Mr. Gelling, Walsall; Mr. Wright, York; Mr. Hughes, Halstead; Mr. Newlands, Lewes; Mr. Watkins, Worcester; Mr. Robson, Northampton; Mr. Kenworthy, Hollinwood; M.B., Downham; Chemist, Clewthorpe; L.R.C.P., Hull; Surgeon; J. A.; Medicus, Tamworth; Alpha, Cardiff; Z. P. L.; J. W.; Beaumont; Medicus, Sheffield; C. B.; &c.

Arbroath Guide, Dundee Advertiser, La Independencia Médica, Shield, Welshman, Cambridge Chronicle, East London Observer, Aberdeen Herald, Daily Free Press, Englishman, Revista de Medicina, Army and Navy Gazette, El Observador, Abergavenny Chronicle, Aberdeen Journal, Laws of Health, Warehousemen and Drapers' Trade Journal, Surrey Advertiser, Metropolitan, San Francisco Western Lancet, Independent Practitioner, Rochdale Observer, Liverpool Daily Post, Boston Medical and Surgical Journal, &c. &c., have been received.

METEOROLOGICAL READINGS.

(Taken daily at 8 a.m. by Steward's Instruments.)

THE LANCET OFFICE, March 24th, 1880.

Date.	Barometer reduced to Sea Level, and 32° F.	Direction of Wind.	Dry Bulb	Wet Bulb	Solar Radia in Vacuo	Max. Temp Shade	Min. Temp	Rain fall.	Remarks at 8.30 A.M.
Mar. 19	30·41	E.	42	41	79	56	38	..	Cloudy
,, 20	30·33	S.E.	35	34	85	51	32	..	Foggy
,, 21	30·20	N.E.	43	38	83	52	43	..	Hazy
,, 22	30·36	E.	40	36	80	45	32	..	Overcast
,, 23	30·36	N.E.	41	38	71	46	35	..	Overcast
,, 24	30·33	S.E.	42	40	87	57	32	..	Hazy

Medical Diary for the ensuing Week.

Monday, March 29.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS. — Operations, 10½ A.M. each day, and at the same hour.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M. each day, and at the same hour.
METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.
ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.
ST. MARK'S HOSPITAL.—Operations, 2 P.M.; on Tuesday, 9 A.M.

Tuesday, March 30.

GUY'S HOSPITAL.—Operations, 1½ P.M., and on Friday at the same hour.
WESTMINSTER HOSPITAL.—Operations, 2 P.M.
WEST LONDON HOSPITAL.—Operations, 3 P.M.

Wednesday, March 31.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.
MIDDLESEX HOSPITAL.—Operations, 1 P.M.
ST. BARTHOLOMEW'S HOSPITAL. — Operations, 1½ P.M., and on Saturday at the same hour.
ST. THOMAS'S HOSPITAL. — Operations, 1½ P.M., and on Saturday at the same hour.
ST. MARY'S HOSPITAL.—Operations, 1½ P.M.
KING'S COLLEGE HOSPITAL. — Operations, 2 P.M., and on Saturday at 1 P.M.
LONDON HOSPITAL.—Operations, 2 P.M., and on Thursday and Saturday at the same hour.
GREAT NORTHERN HOSPITAL.—Operations, 2 P.M.
UNIVERSITY COLLEGE HOSPITAL. — Operations, 2 P.M., and on Saturday at the same hour.
SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN. — Operations, 2½ P.M.

Thursday, April 1.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M.
ST. BARTHOLOMEW'S HOSPITAL.—1½ P.M. Surgical Consultations.
CHARING-CROSS HOSPITAL.—Operations, 2 P.M.
CENTRAL LONDON OPHTHALMIC HOSPITAL. — Operations, 2 P.M., and on Friday at the same hour.
HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M.
HARVEIAN SOCIETY. — 8½ P.M. Dr. Cavafy, "On a Case of Urticaria Pigmentosa."—Mr. Malcolm Morris, "On a Case of Pemphigus Cured by Arsenic."—Mr. Reeves, "On Rectal Stricture, with special reference to Rectotomy and Twenty-five Colotomies."

Friday, April 2.

ST. GEORGE'S HOSPITAL.—Ophthalmic Operations, 1½ P.M.
ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 2 P.M.
ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

Saturday, April 3.

ROYAL FREE HOSPITAL.—Operations, 2 P.M.

TERMS OF SUBSCRIPTION TO THE LANCET.

POST FREE TO ANY PART OF THE UNITED KINGDOM.

One Year.....£1 12 6 | Six Months £0 16 3

To CHINA AND INDIA ..... One Year, £1 16 10
To THE COLONIES AND UNITED STATES.. Ditto, £1 14 8

Post Office Orders in payment should be addressed to JOHN CROFT, THE LANCET Office 423, Strand, London, and made payable to him at the Post Office, Charing-cross.

TERMS FOR ADVERTISING IN THE LANCET.

Seven Lines (seventy words) and under ..	£0 4 6
Every additional Line	0 0 6
(Each Line averages eleven words.)	
Front Page .. .. per Line	0 1 0
Quarter Page	1 10 0
Half a Page	2 15 0
An entire Page	5 5 0
Advertisement Index .. .. per Line	0 0 6

Terms for Serial Insertions may be obtained on application to the Publisher.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

N.B.—All letters relating to Subscriptions or Advertisements should be addressed to the Publisher.

Agent for the Advertising Department in France—
[M. BERTHIER, 104, Boulevard St. Germain, Paris.